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A N
E N Q U I R Y
CONCERNING
APOPLEXIES and PALSIES.

[Price THREE SHILLINGS.]

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I N T O
T H E V A R I O U S T H E O R I E S
A N D
M E T H O D S O F C U R E
I N
A P O P L E X I E S a n d P A L S I E S.

By B. CHANDLER, M.D.
ET COLL. REG. MED. LOND. PERMISSUS.

ΑΠΟΠΛΗΞΙΗΝ ΙΣΧΥΡΗΝ ΛΥΕΙΝ ΜΕΝ ΑΔΥΝΑΤΟΝ,
ΑΣΘΕΝΕΑ ΔΕ ΟΥ ΡΗΔΙΟΝ.

HIPP. ΑΡΗ.

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A L S O B Y

J. JOHNSON, ST. PAUL'S CHURCH YARD, LONDON.

1785.

AN
E N O U I R Y

INTO

THE VARIOUS THEORIES

AND

METHODS OF CURING

IN



APOTHEMIES AND PALLIATIVES

BY B. CHAMBERLIN, M.D.

ST. JOHN'S COLLEGE, MEDICAL DEPARTMENT, BOSTON

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1785

TH E frequency of Apoplexies and Palsies, their fatality, or their termination in a state of infantile weakness and fatuity, are sufficient reasons for ranking them with the most alarming diseases. They are therefore, deservedly, amongst the first objects of the physician's meditation and research.

Accordingly we find that they have been treated of, more or less fully, by every author of note, from the day of the great father of physic to the present. Yet we have the mortification to find, at the latter

end of the eighteenth century, so great a man as professor Cullen, of Edinburgh, confessing, “ that in the first of these, “ which often proceeds so quickly to a “ fatal termination, the effects of remedies “ are not with certainty to be easily as- “ certained.” And in the second discarding “ as useless, ambiguous or dangerous,” many of the means and medicines, on which hitherto we have been taught to place some reliance.

If these strictures be just, they cannot fail to excite a reflection as humiliating to the pride of science, as painful to the sensibilities of philanthropy; that, in the course of almost three thousand years, we should have advanced no farther.

It must be acknowledged, that much confusion and contradiction may be discovered in most of the authors, whether ancient or modern, who have written on these subjects : to which the division of apoplexy into the sanguineous and ferous, and the confounding both with asphyxy, has probably given rise. I suspect also that in practice, by too generally attending to the appearances and overlooking the causes, we have, with a pardonable but hasty zeal to do every thing, sometimes done too much.

The originallity, in many points, of the learned professor's doctrine, and the so frequent want of success, confessedly, in our treatment of these diseases, have
together

together led me to examine, what has been produced by former writers ; and to compare them with each other, and with the two chapters on these subjects, in the “ first lines of the practice of physic.”

Necessity then, as well as choice, obliges me to follow the method there observed, and to quote largely ; even sometimes complete sections : which I do with less compunction because it appears to me, that by the pathology there delivered, the nature of these diseases is better explained than it has been hitherto ; and that, when the medendi methodus, resulting from it, is more generally known and is steadily and coolly practised, we may succeed in some cases, of apoplexy more especially, wherein

wherein we have formerly failed ; and some valuable lives be preserved.

I am not however vain enough to imagine that the “ first lines,” which I take the liberty to substitute as the ground-plan of the following treatise, can derive any additional weight or celebrity from my feeble efforts. But I consider, as that work is intended for a text-book, fuller indeed than text-books usually have been, as its author observes, it is still necessarily concise ; and as therein a system almost new is promulgated, and a vast mass of information condensed into a small compass, it is possible, that a particular chapter or two may be passed over, without leaving so much impression on the mind
of

of every reader, as the important doctrines therein delivered seem to me so eminently to deserve.

Such an amplification of the work of a living author, and collation of it with the writings of those who have preceded, in the same path of science, appears to myself a very formidable undertaking; and I guide my pen with a trembling hand. Nothing would have drawn me forth but a full conviction, from reason and experience, of the necessity of a reform in the mode of treating apoplectics. The doctrines, here to be enforced, lead to a very considerable one; and the desire of diffusing them, being the motive of the following publication, will it is hoped

apolo-

apologize, for the free use which is made of that book, and for the errors and deficiencies which are to be met with in these pages.

Of

E R R A T A.

<i>Page</i> 10, <i>line</i> 13,	<i>for</i> æthiology	<i>read</i> ætiology
— 21, — <i>ult.</i>	— boney	— bony
— 23, — 13,	— boney	— bony
— 31, — 13,	— trickling	— tickling
— 47, — 18,	— fout	— font
— —, — 19 & 20, —	mutelle	— mortelle
— 53, — 8, <i>after</i> Electricity	<i>add</i> whether natural or artificial	
— 70, — 12, <i>for</i> sanguineous	<i>read</i> sanguiferous	
— 72, — 20, —	affimulated	— assimilated
— 75, — 21, <i>after</i> case	<i>add</i> we	

OF APOPLEXIES.

THE laws of order require that, in a treatise of any one particular disease, we should consider, at setting out, in what place it has formerly stood, or ought to stand, in the general nomenclature: and with what other diseases, according to its resemblance in symptoms, causes, or effects, it has been or ought to be associated.

So early as the age of Hippocrates some attention was paid to classification, and the whole catalogue, of the then known diseases, was divided simply into the acute and chronic: afterwards, however, to be farther described by their causes, seats, &c. To this succeeded, for a time, the *strictum et laxum* of the methodic sect; a more arbitrary and perplexing distinction

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than

than the former: and appearing as such to Galen, he restored the Hippocratic division; which has, with more or less of change in its subdivisions, continued in use to the present day. Yet it is, and ever must be, very incomplete and often confused, as diseases are for ever passing from the acute to the chronic class. By such a separation all affinity is abolished, and diseases of the same origin are often so far disjoined as to occasion the similarity of feature to be overlooked.

Of this professor Boerhaave seems to have been aware, but imagining himself bound, by the shackles of antiquity, to treat of apoplexy as an acute, and of palsy as a chronic disease, has, to approximate them as much as possible, concluded one division with the first of these, and began the other with the second.

Another copious source of confusion has arisen out of the doctrine of original temperaments and elementary humours. Thus apoplexy, catalepsy, cataphora, coma and carus were hot, whilst palsy and lethargy were accounted cold. Blood and black-bile were, for the most part, supposed to
abound,

abound, either together or separately, in the first of these; pituita or serum always in the last.

The celebrated nosologists of the present æra, imitating the example of the illustrious Linnæus, in his sexual system of vegetables, have endeavoured at a classification of diseases, according to the resemblances observed between them. A work of undoubted utility, but of difficult execution; as appears by that part of it now more particularly before us; where they seem not to be perfectly agreed: one having placed apoplexy and palsy in the same class or order, another having separated them, and so on.

Professor Cullen admits them as the only two possible genera of his order Comata, 1093. of the class Neuroses. By which method, the relationship between them is strongly marked, much of the ancient obscurity removed, and new light thrown on both. The frequent transition of apoplexy into palsy, and of palsy, when it proves mortal, into apoplexy again, argues strongly in favour of this classification.

Yet, viewing this subject with a critical eye, I have been inclined to doubt whether such a division alone, just as in many cases it certainly is, will be found sufficient, in every state and variety of these diseases, to answer all the purposes of nice discrimination; wherefore it will be hereafter occasionally resumed.

From arrangement we are regularly conducted to definition.

1094. “ Apoplexy is that disease in which
 “ the whole of the internal and external senses,
 “ and the whole of the voluntary motions are
 “ *in some degree* abolished: whilst respiration
 “ and the action of the heart continue to be
 “ performed. By its being an affection of the
 “ *whole* of the powers of sense and motion, we
 “ distinguish it from palsy; and by its being
 “ with the continuance of respiration and the
 “ action of the heart from syncope, &c.”

Boerhaave defines apoplexy an abolition, totally and unreservedly, of all the senses external and internal.—“ Est ergo apoplexia repentina
 “ omnium sensuum externorum et internorum,
 “ motuum-

“ motuumque voluntariorum abolitio *.” By which he excludes as different diseases the carus, cataphora, coma and lethargus. These in reality differ from apoplexy only in degree. They are but modifications of the same: from that they often begin and in that, if they terminate fatally, always end. Professor Cullen, by qualifying his definition with the words *in some degree only*, has given himself an opportunity of treating them, as they ever ought to have been, together.

1095. “ Apoplexy, in all its different degrees,
 “ most commonly affects persons advanced in
 “ life, and especially those above sixty years of
 “ age. It most usually affects persons of large
 “ heads, and short necks, and of a corpulent
 “ habit, who have passed an indolent life, and
 “ used a full diet; and especially those who
 “ have indulged in frequent intoxication. Men
 “ who have long laboured under a frequent and
 “ copious discharge of blood from the hæmorrhoidal vessels, upon either the suppression or
 “ spontaneous ceasing of that discharge, are

* Prax. Med. Aph. 1008.

“ particularly liable to be affected with apo-
 “ plexy.”

1096. “ This disease frequently comes on
 “ very suddenly, but in many cases it is pre-
 “ ceded by various symptoms, as by frequent
 “ fits of giddiness, frequent head-achs, a hæ-
 “ morrhage from the nose, some transitory in-
 “ terruptions of seeing and hearing, some tran-
 “ sitory degree of numbness or loss of motion
 “ in the extremities, some faltering of the
 “ tongue in speaking, a loss of memory, and
 “ frequent drowsiness and fits of incubus.”

1097. “ An attention to these symptoms and
 “ predisponent circumstances, will often enable
 “ us to foresee the more violent attacks of this
 “ disease.”

1098. “ When the disease comes on suddenly
 “ to a considerable degree, it has been fre-
 “ quently observed to have been immediately
 “ induced by violent exercise, by a full and
 “ long continued inspiration, by a fit of anger,
 “ by much external heat, particularly that
 “ arising from a crowded assembly of people,
 “ by warm bathing, by intoxication, by long
 stooping

“ stooping with the head down, and by a tight
 “ ligature about the neck. The disease has
 “ been remarked to make its attacks more fre-
 “ quently in the spring season, and especially
 “ when the vernal heat suddenly succeeds to
 “ the winter cold.”

These sections, containing the most clear, full and yet concise description of apoplexy, its predisponent circumstances, its antecedent symptoms and its exciting causes, which I have ever met with, has induced me to give them without abbreviation. Because these sheets may fall into the hands of some persons, not of the profession of medicine, who, attracted by a title which comes home to every man's feelings, would not think of entering on the subject in larger volumes; which profess to teach of every branch of the science. It may be said, indeed, that Tiffot's Advice to the People, and Buchan's Domestic Medicine, popular books, are in almost every hand: but the first is in perspicuity and fulness inferior, and the curative directions of the last, are not reconcileable to the Cullenian doctrine. By the delineation here given, every man

may be apprized of his own situation; and, as in no disease the old axiom, of its being easier to prevent than cure, can be more justly applied, may induce him, in time, to submit to a proper prophylactic course of medicine and diet. The physiological consideration of these several circumstances, causes and symptoms is, to avoid repetition, deferred till we accompany our author in tracing them farther back.

1099. " The symptoms denoting the presence of this disease, &c."

The definition given at 1094. is so explicit, in the description of all the present symptoms, that it only remains to be added, that sometimes the loss of sense and motion takes place more on one side than on the other, and that the side least affected with palsy is often convulsed, that there is often a stertorous breathing, which has been said to be a mark of the most violent state of the disease; but that it is not always present, even in the most complete form or highest degree of it.

By those who are acquainted with the structure of the brain and cerebellum, the first
divided

divided into its two hemispheres by the falci-
 form process of the dura mater, and the second
 into two distinct portions by its pia mater and
 tunica arachnoides, it will be immediately un-
 derstood, how an effusion, of blood or serosity,
 may be confined to one side only. The nerves
 dependent on the oppressed part, will be ren-
 dered paralytic: and this affection will take
 place on the opposite side of the body, because
 of the well-known decussation of the medullary
 fibres. The other hemisphere being less op-
 pressed, or as may happen in a few cases quite
 at liberty, will sometimes, from the inexplica-
 ble sympathy, which exists between all the parts
 of the nervous system, be excited to greater
 exertion, and this excitement produce convul-
 sions. Anatomical inspections, of the encephalon
 of those who have died apoplectic, have
 often discovered to us that a congestion of
 blood in the vessels, as well as extravasation,
 has taken place more on one side of the brain
 than on the other: and sometimes that red blood
 has been effused on one side, and serum or
 lymph only on the other. In cases of the hydro-
 cephalus

cephalus internus, convulsions are almost always an attendant symptom, though here generally the extravasation is purely lymphatic.

But over distension, not carried quite so far as to produce apoplexy, is set down by our author as a principal and peculiar stimulus, frequently occasioning epilepsy. Lancisi† relates a case of apoplexy, epilepsy and syncope combined, which, after a time, passed into palsy and ended in death. He endeavours to account particularly for every of these, as he supposes, distinct diseases; and to assign specific causes for each: whereby his ætiology is rendered complex and obscure, when by attending only to the varied effects of accumulation or effusion, all the phænomena might have been more clearly explained.

The stertorous breathing, being by no means a constant symptom, may perhaps with propriety be referred to those cases chiefly, which derive their origin from polypous concretions in the heart and nearest blood vessels: where an effusion has taken place in the bronchiæ of

† Obs. Phys. Med. et de Morb. sub.

the lungs, about the same time or prior to its happening on the brain.

1100. " The proximate cause, &c."

From a concurrence of the predisposing and occasional, which have been enumerated, always flow the proximate causes of diseases. Hitherto we have only mentioned those which ^affect primarily the sensorium commune, and interrupt the progression of the nervous power, from the brain to the muscles of voluntary motion. But, in some kinds of apoplexy, we have other proximate causes, which, without the aid of predisponents or occasionals, are all-efficient of themselves. These are such as, by affecting the sentient extremities of the nerves, communicate that affection to the brain itself, and thus produce an immobility of the whole system. This variety of the disease, when not occasioned by any of the narcotic poisons, taken into the stomach, has generally and with propriety enough been distinguished by the name of Asphyxy.

1101. " Such an interruption, &c."

having

Having thus divided apoplexy into two distinct diseases, arising from very different proximate causes, the one as it were *ab intra*, the other *ab extra*, it is plain that they ought to be separately treated of: and, therefore, first of that from compression, the most frequent, if not the only, cause, acting *ab intra*.

1102. "The loss of sense and motion in particular parts, &c."

It being the Professor's design to treat of apoplexies and palsies as general affections of the brain, and nerves of the whole body; he naturally disengages himself from the consideration of all partial affections, such as the paraplexia or paralysis of any particular limb or viscus; which may arise from disease or injury to the medulla spinalis, or nervous chords, their ganglia or plexusses, in any part of their course or at their origin.

1103. "This compression of the origin of the nerves, or medullary portion, &c."

In this section are enumerated the several means of compression; and divided into four distinct ones, *viz.* fracture, with depression of
the

the cranium; tumours soft or bony, formed in different parts of the brain or in its membranes; blood accumulated in the vessels, and so distending them as to occasion compression; and lastly, effusions of different fluids; blood, serum or lymph on the surface of the brain, or in its ventricles, or at its basis within the cranium.

1104. “ Of these several causes, &c.”

This being intended a treatise of internal medicine only, the consideration of the first of these causes, as appertaining to the province of surgery or external application, is omitted: and the second dismissed, as being in most instances neither to be discerned nor cured: the third and fourth, *viz.* blood accumulated and fluids effused, being the most frequent and also most strictly the subjects of the physician's attention, are those which we are to trace farther back, and to treat of more diffusively.

But that the consequences of the second cause may not be quite neglected, it seems necessary to add; that, however obscure the symptoms, they will often lead to a reasonable suspicion that something preternatural, of this sort, has taken place

place within the cranium. Which, though not to be removed by any art yet known, may, if tumour, be relieved in its effect of compression, and its fatal tendency suspended, by the prophylactic and curative methods hereafter specified.

1105. “ Both the states of over distension
 “ and of effusion may be produced by whatever
 “ encreases the afflux and impetus of the blood
 “ in the arteries of the head, &c.”

Anatomists have observed with admiration the beautiful contrivance of nature, to derive a larger quantity of blood to the brain, than to any other viscus of equal size, and to maintain the circulation there full, slow and regular. Baron Haller, with other physiologists, has pointed out the angles and inflections of the vertebral and carotid arteries both before and after they enter the skull, and the dilatations of their canals as they advance: different from all others, (except the spermatics,) which are continually lessening in their progress.

Professor Monro informs us, that this design appears more eminently in ruminating quadrupeds.

drupeds. He having discovered that the rete mirabile of Galen, or plexus vasorum usûs incogniti of Heister, consists entirely of a division of the internal carotid into small serpentine branches. And adds that, although the momentum of the blood is thus broken, the quantity in circulation is still greater in the brain than in most organs of the same weight. He does not indeed quite agree with Boerhaave and Haller in the very great disproportion of blood which they have allotted, but allows that though not above one tenth of the whole mass is circulated within the head, it is nearly four times more than in any other equal part of the aörtic system : the weight of the encephalon being not more than one fortieth of the whole body. Therefore whatever increases the afflux or impetus of the blood in the arteries of the head, will often be a cause of apoplexy : and these may be increased by

“ Violent exercise.”

Strong and continued exertions of the muscles of voluntary motion, whether in running, leaping or otherwise, have the effect of propelling the

the

the venous blood in a fuller and quicker tide to the heart. Consequently this organ contracts more frequently; in other words, the circulation is accelerated, a larger proportion of the vital fluid is sent out in a given time by the aorta and the pulmonary artery: the lungs are oppressed, cannot be fully expanded, respiration becomes difficult: then the heart cannot empty itself in its systole, both its auricles and both its ventricles are too full: and thus whilst a more than usual quantity of blood is perpetually rushing towards the brain, its free return is prevented.

“ Violent fit of anger.”

Sudden and furious resentment acts, with some persons in one circumstance, similar to fear, all the blood vessels, of the extremities and superficies of the body, are contracted, pallidness and trembling are induced, and the distribution thus rendered unequal, blood is accumulated about the heart and head. With others it occasions a suspension of breathing, by which the returning blood is obstructed in all the veins, external as well as internal, of the head and neck: the countenance becomes red,

is

is enlarged, and the eye-balls project fiercely from their sockets.

There is a passion, whose tempestuous sway
Tears up each virtue planted in the breast.
For *pale and trembling* anger rushes in,
With *fault'ring speech*, and *eyes that wildly stare**

“ External heat.”

This, especially when arising from a crowded assembly of people, or occasioned by warm bathing, 1098. has the effect of rarefying and expanding the blood, producing the “plenitudo
“ ad molem †. Sicuti sanguis ipse quantitate
“ non auctus expanditur, vasaque continentia
“ non secus ac vera plenitudo distendit, sanguine
“ nimirum pro rata parte plus rarefacto
“ quam vasa relaxata essent.” In heated rooms, the late ingenious experiments of Dr. Crawford and others have shewn us, that the human body, and other animal bodies in different degrees, has the amazing power of attemperating its own

* Armstrong, book iv.

† Greg. Med. Theor. 271.

atmosphere ; if we may be allowed so to speak : or, in other words, of maintaining in itself a degree of coolness much below that of the surrounding medium.

But the heat of crowded assemblies has the additional ill property of loading the air, which we must inspire, with moisture, with miasmata, with phlogiston. It is thereby rendered less elastic, and less fit for the purposes of respiration. The blood is not sufficiently ventilated, the heat increases, a temporary fever is produced : often sufficient, by the augmented impetus and volume of the contained fluids, to overcome the resistance of the containing vessels.

“ Strong pressure on the descending aorta.”

Whatever obstructs the free transit of the blood in any part of the aortic channel, below that point where the carotid and vertebral arteries go off from it, must necessarily determine a larger proportion, by those vessels, to the head. Such obstruction will be most likely to happen about the great curvature, where some impediment is occasioned by its angular shape,
and

and where polypous concretions are very apt to be formed. From its vicinity to the heart and constant exposure to the strong contractions of that muscle it is, at this point particularly, subject to aneurysmatic dilatation: by which a kind of vortex is produced in the blood's motion, unfavourable to its regular current.

The aërta may likewise be compressed in any part of its course, by the distension of the stomach, by schirrous enlargement of any of the abdominal viscera, by tumour of the spine, &c. Even the posture of the body will sometimes have great effect. Sleeping on the back or right side, occasions terrifying dreams and the incubus even in the most healthy persons, and when assisted by intoxication, or only unusual weariness, in those who are predisposed, may induce apoplexy. Such circumstances, slight as they may appear, have no doubt been sometimes the incidental causes of sudden death to those who have gone to bed immediately after a full meal, in apparent health and security.

“ Intoxication: and, the vernal heat suddenly succeeding to the winter cold.” 1098.

The first of these gives rise to a temporary fever, probably with all the disadvantage of being combined with crapula, or of having been frequently repeated. The last acts upon the general principle, of sudden expansion, which has been before mentioned under the head of external heat.

1106. “ But both these states seem to be
 “ more frequently produced, by causes that
 “ operate, by preventing the free return of the
 “ venous blood, &c.”

We are hereby instructed that a sanguineous plethora may take place either in the arterious or venous system: and in the following pages we shall endeavour to shew that apoplexy most usually happens in consequence of the venous.

1107. “ The venous vessels of the brain, are
 “ of a conformation and distribution so pecu-
 “ liar, &c.”

Professor Monro observes, that the passage of the veins through the dura mater to their respective sinusses is oblique, and that many of them are inserted in a direction contrary to the blood's motion. From whence we are lead to believe

believe that Nature intended to retard and accumulate it in these vessels : therefore very small additional resistances may suffice to produce congestion, effusion, and all their consequences.

“ Such accumulation will most readily happen in advanced life.”

The experiments of Sir Clifton Wintringham inform us, that in the earlier stages of our existence the veins very much exceed the arteries in density and in strength : that in order for the growth of the body an arterious plethora is, in healthy young persons, generally present ; by which every fibre is elongated gradually : till, having obtained our full height, the two systems arrive at a perfect equilibrium, which they maintain during the state of manhood. But gradually, on account of the continual pressure which they suffer, and the force which they constantly exert in their contractions, the arteries, by the condensation of their coats, grow stronger ; and exceed the veins in firmness and in power : so as to become in extreme old age cartilaginous, and even boney.

“ Hinc primâ ætate plus sanguinis, pro ratâ
 “ parte, in arteriis, provectâ autem plus in
 “ venis, continetur: res sane haud levis mo-
 “ menti, scilicet quæ rationem quodammodo
 “ reddit corporis incrementi, statûs et imminu-
 “ tionis*.” Man, therefore, was not framed
 for immortality !

These considerations also instruct us, why particular periods of life are more especially subject to some peculiar diseases. As, for instance, why the Epistaxis is the disease of childhood, Hæmoptysis of puberty, Hæmorrhoids of manhood, and Apoplexy or Hæmorrhagia Cerebri of beginning old age: and why persons who have long laboured under a frequent and copious discharge of blood from the hemorrhoidal vessels, upon either the suppression or spontaneous ceasing of that discharge are particularly liable to be affected with apoplexy. 1095.

“ In persons whose heads are large with re-
 “ spect to the rest of the body.”

This conformation is generally indicative of a strong and plethoric habit of body; and as

* Gregory Med. Theor. 271.

such Dr. Cadogan reckons it amongst the external signs of a disposition to the Gout, which, he says, is the disease of the best constitution.

But there is one particular case, of disproportion of the head to the rest of the body, which seems here more obviously to offer itself for consideration. I mean that which is so often the consequence of the disease called, the Rickets. Children who have suffered from this in their infancy, have for the most part the futures of the cranium long unclosed; and the blood vessels of the brain, from that cause, not being duly supported by the boney compages, have admitted a larger proportion of their proper fluids: they have been unusually dilated, and remain larger and of a weaker texture through life. “† *Arteriæ carotides venæque jugulares* “ *crescunt, dum reliquæ partes decrescere incipiunt.*” The whole volume of the brain is increased. “† *Aperto cranio, cerebrum* “ *molle, flaccidum, proportione et mole pe-* “ *cans.*” In the mean while the vascular structure of the other parts of the body is evolved

† Boerhaave *Prax. Med.*

slowly and with difficulty : and they hardly ever attain their full and originally destined growth. But, the first causes of this complaint being at last surmounted, they often acquire a very comfortable degree of health and strength ; yet hardly ever arrive at the same muscular and active state, as those who have passed a more healthy childhood. The appetite and digestion however being equal, and perhaps sometimes superior, they are peculiarly subject to a plethora of the dilated and tender vessels of the encephalon. We observe them, in childhood, of an uncommon wit and sagacity, and towards the age of puberty subject to bleedings at the nose, or, as a distortion of the spine and thorax are frequently attendants, to spittings of blood, and consequent phthisis pulmonalis ; and afterwards, when the venous plethora naturally succeeds the arterious, to apoplexy and palsy.

“ In persons of a short neck,”

This is generally one part of the athletic make, belonging to the broad shoulder and muscular structure, denoting strength and fulness. The jugular veins, whose office it is to receive
all

all the blood returning from the sinusses of the dura mater, being necessarily short, as the neck is, have not the same opportunity of dilating as they should have, and of admitting a larger quantity than usual, as they would occasionally do, if they had more length; and a greater distance was interposed between the sinusses of the dura mater, and vena cava superior. They being, like all other elastic tubes, dilatable to a certain degree. Dr. Fothergill thought it very unsafe for persons of such a make to look backwards any length of time, without turning the whole body: as the diameters of the jugular veins may be so much contracted by it, as for their sides to come into contact.

He confirms the opinion by a case, in which an apoplectic fit was thus occasioned*.

It has been observed of cattle, who have long necks, and their brain at a considerable distance from their heart, that they never die apoplectic.

“ In persons of a corpulent habit.”

This too, as a general indication of plethora, for the most part implies that the subject has

* Vid. Med. Obs. vol. vi.

lived well, and given way more or less to the indulgences of indolence and the table. A fat soldier is seldom seen. But the cells of the adipose membrane being every where distended, will cause a compression of the blood vessels, in many parts of the body; by which they will be prevented from admitting their due proportion: whilst those of the brain, where no fat is deposited, being entirely free from such compression, will receive a superabundant quantity. Surgeons observe that it is, for the most part, difficult to perform phlebotomy on fat patients, not merely because their veins lie lower, but because they are smaller also.

1108. “ These are the circumstances which producing a slower return of the venous vessels of the head, favour an accumulation in them.—

And we now proceed to mention

The occasional causes.

1st. “ Stooping down with the head, &c.”

This posture, if long continued, must produce accumulation in the vessels of the head, because the afflux of the blood acting by its own gravity, is increased in the arteries, and

its

its reflux opposed in the veins; according to the laws of hydraulics. The suffusion and redness of the face likewise manifest the effect. The danger here will be much increased if any force is at such a time exerted, as the deep inspiration, preparatory to every muscular effort, will add to the determination towards the brain.

2d. “ A tight ligature about the neck.”

The effect of this, by compressing the jugulars, is sufficiently evident; as the area of these may be much diminished whilst the arteries, which lie lower, remain free and open. A bandage so strict as to compress the last, must straighten the trachea also, and prevent respiration.

3d. “ Any obstruction of a number of the veins, &c.”

Whatever cause can, at once, obstruct a considerable number of the returning veins, will have more effect than that mentioned above; where the external jugulars only are concerned: because the internal ones and other collateral and anastomosing branches may remain free. But an impediment in the sinus of the vena cava,
whether

whether polypous concretion, schirrous tumour, or other obstruction or coarctation, is an obstacle to all the vessels conveying blood from the brain.

4th. “ Any considerable impediment from
“ the veins into the right auricle.”

The same kinds of obstruction may take place in the right auricle, as in the sinus of the cava, and with the same effect. But both the auricle and ventricle are besides liable to preternatural dilatation and to ossification: either of which will prevent the heart from emptying itself completely in its systole; a palpitation and irregular contraction are produced, and space is wanting for the returning blood.

If a plethora subsists, at the same time, the danger is much increased.

5th. “ Every circumstance which produces a
“ more difficult transmission of the blood,
“ through the vessels of the lungs.”

In this section is pointed out to us that, at every full expiration, some interruption is given to the free transmission of the blood through the lungs: for at that time the diaphragm is
pressed

pressed upwards, and the ribs descend, both acting together in lessening the capacity of the thorax, and compressing all the vessels returning towards the heart: which is evinced by “ the regurgitation of the blood in the vessels
 “ of the head, occasioning that alternate heaving and subsiding of the brain, which has
 “ mistakenly been called its pulsation.” And also that, a very full inspiration has similar consequences, as may be observed by the redness and turgescence, occasioned by it, in the vessels of the head and neck: though in this action the diaphragm descends, the ribs are elevated and the cavity of the thorax is increased, yet the pressure, on all sides, of the distended air vesicles, produces the same effect. It is in the intermediate space, between inspiration and expiration, that the blood flows with most readiness from the head to the heart. But as every strong exertion of muscular force requires a full and long continued inspiration, we see why such exertion is often the immediate cause of apoplexy. * A surprizing instance of strength,

* Rollin Hist. Anc.

as well as effect of long continued full inspiration, is related of Milo, the Crotonian champion. He would burst a cord, tied tight round his head, merely by suspending his expiration.

It has before been pointed out to us, how obesity acts in producing a plethora of the blood vessels of the head, and so becomes a predisposing cause : the parenchyma of the lungs being not more subject to a deposition of fat than the brain, the same determination of the blood takes place there likewise : that it does so is clear from the circumstance of the quick and short breathing of corpulent persons, immediately, on the least increase of bodily motion. Then obesity becomes an exciting cause, the blood is not transmitted freely through the lungs, and the return of it from the head is prevented.

“ Is the motion of the blood in the vessels of
 “ the head rendered slower by study, care and
 “ anxiety ? ”

It would not become me to attempt the solution of so difficult a problem. But from the
 follow-

following quotations it will be seen that the question has generally been answered in the affirmative.

* “ Hinc accidere solet, (nempe apoplexia,) “ ab intentione animi summâ diuturnâ, sæpe “ repetitâ.”—† “ Intentiones animi summæ ad- “ modum nocent: senserunt omnes, qui feveris “ studiis animum adhibuerunt, gravari caput, “ et molestiam tensionem in encephalo sentiri, “ dum nimis diu protrahuntur illi labores.”

---- ‡ “ If that surly spirit melancholy “ Had bak’d thy blood, and made it heavy, thick, “ Which else runs trickling up and down the veins.”

In the physiology of the human mind, the great poet of nature was an acknowledged master. But how its workings regulate, or disturb, the complicated movements of our nice machine, neither philosophers nor poets, have hitherto satisfactorily explained. Baron Haller observes§, that “ they have behaved modestly, who con- “ fessing themselves ignorant, as to the manner

* Boerhaave, Aph. 1010 † Van Swieten in eod.

‡ Shakespeare.

§ First lines of Physiology.

“ in which the body and mind are united, have
 “ contented themselves with proceeding no farther than the known laws, which the Creator
 “ himself has prescribed ; without inventing
 “ and supplying us with conjectures not supported by experience.”

1109. “ It is to be observed further,”

By referring to the foregoing sections we see that apoplexy is produced by a preternatural fulness either of the arteries, or of the veins : a distinction, I believe, hitherto not much noticed. Yet it should be attended to as, from the reasoning before adduced, we may learn, that the first will be most likely to take place in the earlier, and the second in the later periods of life ; and, that they are both severally influenced by distinct causes. A consideration which will somewhat affect the practice, and certainly very much assist in framing the prognostic.

1110. “ Accordingly first, &c.”

Daily experience informs us, that whatever quickens the motion of the blood in the arteries, whether strong exercise, warm stimulating liquors, a heated room, &c. occasions a more
 sensible

sensible perspiration : that is, a larger discharge of ferous humour, exhaling from the relaxed openings of the smallest capillary arteries. And as we know that these arterial mouths are every where opening, not only externally but also, in all the cavities of the body ; and perpetually perspiring a fluid necessary for the moistening their internal surfaces, towards the greater freedom of motion, of the contained viscera on each other : an accumulation must take place and pressure on the adjacent parts be occasioned by it, if that exhaled fluid is not as quickly re-absorbed.

Thus it is that dropsies are formed, in other cavities of the body, as well as within the cranium ; the absorbents not being equal in their functions to the exhalants.

But from the same causes of increased impetus or quantity, whether owing to unequal distribution or to violent exercise, a rupture of these capillary branches may happen ; and red blood be effused on the surface or in the ventricles of the brain.

D

These,

These, as we observed before, are causes of apoplexy most to be apprehended at the periods of adolescence or manhood.

IIII. “ Secondly, the plethoric state of the
“ venous vessels, &c.”

We have seen above that plethora in the arteries is likely to produce apoplexy but in two specific modes: *viz.* by rupture of their smaller ramifications or by increased exhalation from their dilated orifices.

But the venous plethora, so much more likely to produce the disease in question, because it takes place at that period of life when every other circumstance of the constitution conspires with it, may operate in three different ways.

First, by the infarction and fulness of the veins, such a resistance may be opposed to the influx of the blood from the arteries, as to occasion a rupture of them, and consequent effusion. For, though, at this time, we suppose the arterious system to have acquired a degree of strength and resistance superior to that of the venous, yet from the plethora of the last a rupture will be most likely to happen in the first,
because

because when the circulating fluid has passed from the evanescent arteries into the incipient veins, its velocity and momentum are immediately diminished: in the arterious system it is always flowing in tubes whose area is perpetually decreasing, in the venous system the contrary takes place: and “ the dura mater investing the
 “ trunks of the veins of the brain and cere-
 “ bellum, evidently strengthens them, and pre-
 “ vents their being easily ruptured*.

Secondly, “ the over plenitude of the venous
 “ system, by the difficulty it occasions to the
 “ free transmission of the blood from the ar-
 “ terious, may so much add to the impetus of
 “ the circulating mass in the last, as to increase
 “ the action of the exhalant capillaries, and
 “ thereby produce a superabundance of serous
 “ fluid.” In the same manner as we see an-
 farcous enlargements take place in other parts
 of the body, where the returning blood is
 checked in its course by ligatures or tumours,
 compressing the veins.

* *Monro's Nervous System*, p. 4.

Thirdly, “ if we may suppose, as no lymphatics have been yet discovered in the brain, that the ordinary absorbents are not present there, and, that the exhaled fluids are to be taken up by the extremities of veins already overloaded, and therefore indisposed to act as absorbents, it will shew still more clearly, that the causes mentioned above will readily produce an accumulation of serous fluid, in the cavities of the brain: and consequently a compression producing apoplexy.”

That this disease is often thus produced no one can doubt, who has had opportunities of examining the encephalon of those who have died apoplectic: it having so often happened that a quantity of serous fluid has been found in the ventricles, or on the surface of the brain, without any rupture of the vessels being discoverable.

But professor Monro, arguing from analogy and the uniformity of nature, seems decidedly of opinion that “ the lymphatics, or ordinary absorbents, do exist in the brain, as well as in all the other cavities of the human body: although

“ although no accurate modern anatomist has
 “ pretended to demonstrate them. To which
 “ he adds that, as the lymphatic glands of the
 “ head and neck are larger and more numerous
 “ than, comparing them with the inguinal and
 “ axillary, we can suppose to correspond with
 “ the outer side of the head only, it cannot be
 “ doubted that future attention to those diseases
 “ in which acrid matter is collected within the
 “ cranium, or proper experiments made on
 “ living quadrupeds, or accurate dissection,
 “ after tying up the lymphatics in the neck,
 “ will establish the proof, that absorption
 “ within the head is performed, as elsewhere,
 “ by the lymphatic system.”

1112. “ Besides these cases of apoplexy,
 “ &c.”

Under the two preceding sections, it was
 pretty fully explained how an effusion of serum
 might happen, from increased afflux of blood
 in the arteries, or from plenitude and resistance
 in the veins; which, appearing afterwards by
 dissection, gave rise to the idea that apoplexy
 was occasioned either by an effusion of serum or

of blood; and thence came the distinction of sanguineous and serous apoplexy. A distinction which, when applied to practice, could not but be productive of much mischief; as we see that they both arise from the same cause: *viz.* increased action of the arteries, and over resistance of the veins.

But we are now to consider two other causes of serous effusion, the one a relaxation of the exhalants, as in other cases of hydropic diathesis; the other an over proportion of watery parts in the blood, as in the case of ischuria renalis.

General dropsies we see frequently end in apoplexy, the mouths of the exhalants being relaxed to a great degree and the absorbents having lost their power. Professor Cullen observes, in his lectures, that he never met with but four cases of incurable ischuria renalis; all of which ended in apoplexy*.

1113. “ We have now mentioned the several
“ causes of apoplexy depending upon com-
“ pression, &c.”

* Diff. Inaug. a D. Stuart.

From a careful review of all the causes of apoplexy hitherto adduced, we may be convinced that the most frequent is a plethoric state; or an “accumulation and congestion of blood, in the venous vessels of the head operating, according to its degree, in producing over distension or effusion.”

This tracing back of the several causes of apoplexy, and consequently of its subordinate divisions lethargy, coma, &c. seems to me of the utmost importance. It gives the clearest theory of all the soporose diseases hitherto proposed, and establishes the only proper and rational method of cure.

“The frequent operation of such a cause will especially appear from a consideration of the predisponent circumstances, and from the antecedent symptoms.”

1114. “From the view I have now given of the causes of apoplexy, &c.”

The judicious professor, in this section, allows that there is, and from what has been said we see clearly that there is, a foundation for the common division of this disease into the two

kinds sanguine and ferous. But he contends that it cannot be very *usefully* applied to practice, as both depend upon the same cause. He might have gone farther and said that it could not *safely* be applied to practice: for to the mistaken idea arising from this distinction may, I apprehend, be referred much of the error and confusion, which we have seen in practice, and read of in books relative to the treatment of apoplectics.

The intention of rousing such patients, by stimulating applications to the surface, and by volatiles poured down the throat, would never have entered the heads of sensible men, who had clear notions of the theory here delivered.

Hydropic diathesis, and an over proportion of water in the blood from any cause which prevents its separation by the kidneys, will indeed produce an apoplexy properly ferous: but very different from that occasioned by venous plethora. The one an idiopathic disease, arising from fulness, as such is to be considered: the others, symptomatic diseases merely; and the cure of them to be attempted by the usual
means

means of relieving the original complaints ; of which they are but parts.

So that the practice alluded to, in its full extent, can be proper and defensible in none of these.

1115. “ Beside the causes now mentioned,
 “ occasioning apoplexy by compression, I al-
 “ lege there are other causes producing the
 “ same disease, by directly destroying the mo-
 “ bility of the nervous power. Such causes
 “ seem to be the mephitic air arising from
 “ fermenting liquors, and from many other
 “ sources ; the fumes arising from burning
 “ charcoal, the fumes of mercury, of lead,
 “ and of some other metallic substances ;
 “ opium, alcohol, and many other narcotic
 “ poisons : to all which I would add the power
 “ of cold, of concussion, of electricity and of
 “ certain passions of the mind.”

I shall take the liberty to begin my observations here with the words of Sydenham.—

“ Reperiuntur morbi qui, sub eodem genere
 “ ac nomenclatura redacti, ac, quoad non-
 “ nulla symptomata, sibi invicem consimiles,

“ tamen

“ tamen et natura inter se discreti, diversum
 “ etiam medicandi modum postulant *.”—It
 would be better surely then if such two diseases,
 thus distinct in their nature and requiring so
 opposite a method of cure, were to be distinguished
 by a different appellation? Whoever has seen the
 medendi methodus, adapted to apoplexy from the
 causes recited in this section, applied to that
 arising from pressure on the sensorium, must
 acknowledge the necessity of this remark.

The two cases do indeed, in some symptoms
 and in outward appearance, very much resemble
 each other; and the want of a due consideration
 of their “ toto cælo,” different origin and cause
 has, with the division of apoplexy, before
 mentioned, into the two kinds of sanguineous
 and serous, constituted the broad foundation
 of all that confusion, contradiction and error
 in the theory and treatment of apoplexies,
 which we have such frequent occasion to deplore.

But the learned professor observes, in a
 subsequent section, that in all these cases the true

* Sydenham in Præfat.

apoplectic state, congestion or extravasation, is sooner or later produced; and therefore that this is the proper place to speak of such diseases. We must allow it, and also that a treatise of apoplexies would be incomplete, in which these were not comprehended.

Still it seems to me that the necessary distinction would be better preserved, if the term asphyxy was still retained: a name by which the disease in question has heretofore been generally distinguished. It might be a sort of barrier against the considering of them together and treating them promiscuously. With such ideas M. Sauvages has, in his fourth order, *leipopsychiæ*, the genus *asphyxia*, from which he deduces his several species—a *mephitide*, a *musto*, a *fumo*, &c. Our respectable author himself, in the last edition of his *Nosologia*, gives his sixth species of the genus *apoplexia*, the title *venenata*; and in a note tells us—
 “ Genus *asphyxiæ* ad *syncopen* olim retuli, et
 “ ejus species quasdam non, nisi gradu, a *syncope*
 “ differre adhuc censeo.”—“ In *apoplexia* porro
 “ *cerebrum*, in *syncope* autem *cor* primario
 “ affectum

“ affectum esse opinor ; et asphyxiæ species
 “ itaque, prout cerebrum vel cor primario
 “ afficiant, quatenus id fieri, et causis earum
 “ externis conicere liceat, ad apoplexiæ vel
 “ syncopes genus refero.”

Therefore if these causes act, as farther on we are told that they do, by affecting with immobility the sentient extremities of the nerves ; which affection is thence propagated to their origin in the brain, it is very probable that the motion of the heart may be first suspended, before they have reached the sensorium : and thus the term asphyxy be properly applied to the disease, in perfect accordance with his own reasoning.

Anatomy comes in aid of this conjecture : the great plexus of nerves at the upper orifice of the stomach, the plexus pulmonalis of the lungs, on which, from their exposed situation, the first impression is most probably made, and the nerves of the heart, have frequent communications with each other ; and are all derived from the same stock, the *par vagum*. Sympathy too lends her assistance : the immediate

diate sense of refection, and the sudden increase of warmth and pulse, upon taking into the stomach a glass of wine or other cordial, so constantly experienced in all cases of inanition, has not escaped the notice of the least observant: and there is no foundation for doubt, that these nerves have less consent with each other when affected by deleterious, than when by grateful impressions.

But the universally celebrated Fontana holds a very different opinion of this matter, and inculcates that poisons act, not immediately on the nerves but, on the blood, coagulating and separating it.

Without accompanying him throughout the whole circle of a humoral pathology, we cannot but allow great weight to arguments, which are supported by such an assemblage of laborious and accurate experiments.

Before he had observed that the poison of the viper, of which he particularly treats, acted upon the blood in the manner above mentioned; he had concluded from various observations that it manifested exactly the same
 symptoms

symptoms and produced the same effects as
 mephitic vapours and the narcotic simples.—
 “ Rien n’est moins connu que la maniere dont
 “ ce poison agit et donne la mort ; mais si nous
 “ réfléchissons sur les effets de l’opium, sa
 “ maniere d’agir pourra nos instruire et nos
 “ éclairer un peu sur l’action du venin de la
 “ vipere. Ce suc végétale affoiblit d’abord
 “ l’animal, l’assoupit, et bientôt le tue, en
 “ détruisant l’irritabilité de sa fibre musculaire,
 “ &c.”—“ Les accidens et les symptomes qui
 “ suivent la morsure de la vipere ne different
 “ pas beaucoup de ceux (les moffettes) dont
 “ je viens de parler.”—So far the learned Abbè
 agrees with professor Cullen as to the manner in
 which these noxious powers act. The destruc-
 tion of the irritability of the muscular fibre,
 and the affecting with insensibility the sentient
 extremities of the nerves, seem to be but dif-
 ferent modes of describing the same operation :
 the extremities of the nerves, for the most part,
 terminate in muscles.

But M. Fontana continuing his researches
 and repeating his experiments is led, at length,

to

to form very opposite conclusions. He found by repeated trials of injecting the poison of vipers into the jugular vein of a rabbit, that the death of the animal was occasioned by the immediate coagulation of the blood. — “ Le
 “ sang étoit coagulé et noir dans tous les plus
 “ grandes vaisseaux. Il étoit de même dans le
 “ cœur et dans les oreillettes. Les coronaries
 “ étoient gonflées et livides, et l’on voyoit á
 “ l’entour dans la substance musculaire du cœur
 “ une extravasation sensible d’un sang noir
 “âtre, sous forme de grandes taches. Le péri-
 “ carde étoit rempli d’humeur, si c’eut été
 “ une vessie, et l’humeur étoit transparente,
 “ et légèrement teinte en rouge—Le poumon
 “ étoit rempli de taches livides par lesquelles
 “ l’air sortoit avec facilité. Les deux viscères,
 “ principaux organes de la vie, ^{sont} affectés
 “ instantanément d’une maladie grave et **mort** :
 “ telle. Les humeurs se figent sur le champ
 “ dans les grandes vaisseaux, dans les poumons,
 “ et dans le coeur. Tout, en un mot, con-
 “ court á arreter subitement la circulation, et
 “ á ôter la vie á l’animal.”—He allows, that
 the

the symptoms which are induced by this and other poisons, are such as physicians have agreed to denominate nervous; that animals affected by them, some, fall suddenly to the ground, and lie in a torpid, lethargic state, with a pulse so slight and languid as scarcely to be perceived: whilst others suffer violent convulsions, vomiting, anxiety and madness; the heart beating irregularly and convulsively; and the whole arterious system feeling rigid and contracted. All which he accounts for from the unequal cessation of the circulation. — “ Les animaux
 “ foibles, languissans, et qui meurent en per-
 “ dant leur sang, périssent dans d’horribles
 “ convulsions; c’est encore à tort qu’on attribue
 “ dans ce cas les convulsions à la surabondance
 “ des esprits animaux: il paroîtroit plus rai-
 “ sonnable de croire, au contraire que c’est à
 “ leur défaut, ou à la distribution irreguliere
 “ qui s’ en fait dans les muscles, ou pour
 “ mieux dire, à une irregularité dans la circu-
 “ lation du sang, qu’elles doivent leur ori-
 “ gine.”

This

This being the manner in which sedative powers act on living bodies, the disease produced by them must be asphyxy, in the strictest sense of the word, and is the term which M. Fontana makes use of.

The illustrious Abbè however, an enemy professed to all hypothesis, has favoured us with two of his own: for such till farther proof they must be esteemed.

First, that the nerves separate an active principle, a subtile fluid, which mixed with the blood animates it, renders it vital and maintains its fluidity. That the nerves are of a tubular structure was the opinion of Baron Haller, but later anatomists have considered them as impervious chords: no one having pretended to demonstrate that they are canals, hardly to have seen, even with the best microscopes, what might strictly be termed an elementary nerve. That the blood is alive, or possessed of a living principle within itself, is a doctrine as old as the discovery of the circulation; which, having lain dormant for a long while, has been lately revived by Mr. Hunter.

E

Secondly,

Secondly, having found the nerves themselves insensible to the application of poisons, he supposes that the primitive twisted cylinders, which he discovers in the cellular intertexture of the nerves, tendons and muscles, and in the cellular or reticular tissue, of all the other parts of the body, wheresoever diffused; convey a glutinous liquid for the nourishment of the elementary nervous, tendinous and fleshy fibres: that the principal functions of life depend on these primitive cylinders, and that the least alteration in their offices may occasion the greatest disorders in the animal œconomy. And his experiments on poisons lead him to conclude, that it is by their means, that poisons are conducted into the living body and produce their fatal effects.

I am well aware that these conjectures, for such indeed at present they merely are, will be considered by many but as ingenious reveries, the *nugæ splendidæ* of the science, and, till they are confirmed and reduced to practical utility, as subjects fit only to exercise the sagacity of the speculative naturalist; but should
not

not engross the time of the active physician. Such maxims, perhaps true in part, ought however be admitted with reserve. Since the accumulated experience of all ages, such is the variety, the combination and the frequent novelty of diseases, has not been sufficient to establish a practice purely empirical; and it is from disquisitions like these that we have ever been enabled to account for what we see, and to form any safe or solid curative inductions. But to return.

That the two systems, as we have been used to call them, the sanguineous and nervous, are essentially necessary to the existence of animal life, at least in the more perfect genera, we cannot doubt; and every observation hitherto, has served to prove their intimate dependence on each other. When nervous irritability is destroyed, the circulation of the blood ceases; and when the circulation ceases, nervous irritability is abolished, and with it all motion and sensation. The *Exercitationes Anatomicæ* of Harvey, and later observations on the progress of incubation, have instructed us that, as soon

as the punctum saliens is visible in the embryo chick, some rudiments however small may be discovered of a brain and nerves. Therefore the two systems are coëval and they cannot but be coëxistent.

But in asphyxy, or apoplexy from sedative powers, whether these powers make their first impression on the nerves, by affecting them with immobility, or on the blood, by giving a check to its circulation, deserves to be investigated : as the decision involves a very material practical question, *viz.* how far we are authorised to employ all our attention to the restoration of the action of the heart and arteries ; and consequently how far we may consider the contingent event of a congestion, taking place in the blood vessels of the brain, as a secondary object.

Of all the causes recited in the foregoing section, what has been said above applies principally to the *modus operandi* of noxious airs and of the narcotic poisons : but, as there were others in the catalogue, it appears necessary to
take

take some notice of them, before this part of our subject is concluded.

“ The power of extreme cold,” by the insurmountable disposition to sleep brought on by it, previous to its fatal termination*, shews that it ought to be classed with the narcotic poisons, and considered in all respects as an opiate.

“ Electricity” is a mephitic vapour, applied with all the powers of concussion. A stroke of lightening and a shock of electricity are the common and not improper expressions.

“ Concussion” is sometimes so violent as to be the occasion of sudden death : “ † whilst
 “ even upon the strictest examination neither
 “ extravasation nor rupture of any vessel has
 “ been discovered. We have no proof what
 “ the immediate and precise effect of such a
 “ shock is upon the brain, yet there can be no
 “ doubt but that some disorder is produced in
 “ that part of it, from whence the nerves have
 “ their origin, or with which they have an im-

* Forster's Voyage.

† Pott—Concussions, p. 166.

“mediate connexion.” An apoplexia traumatica without a wound, is perhaps a contradiction in terms, but the cases of concussion certainly belong to professor Cullen’s species quinta: they should be distinguished from asphyxy, as the curative indications are different. Fortunately on such occasions, we are generally apprized of the patient’s having suffered some previous violence.

“Certain passions of the mind” do also sometimes instantly kill. Of their mechanical action, on the moving powers of a thinking being, we have already confessed our ignorance: but as here nothing foreign is introduced into the body, the effect must be brought about by the mediation of the nerves. Even the Abbè Fontana, though no disciple of the Stahlian school, does not deny that the movement of the heart is affected by the sensations of the soul.—† “Le cœur est l’organe qui est affecté avant tous les autres, dans les passions de l’ame et dans les affections nerveuses; et c’est de cette premiere altération que dependent le grand

† Vol. ii, p. 169.

“ nombre d'autres, qui l'accompagnent.”—

§ But he denies that the nerves, which are bestowed on that muscle, are the organs of its motion, as they certainly are of other muscles: for the truth of which he appeals to experiments. After which he goes on to doubt, whether the motion of other muscles is always produced by the immediate action of the nerves. And at length, recurring to his favourite humoral system, concludes thus:—§ “ L'irritabilité paroît indépendant du sentiment de l'animal; et il n'est d'ailleurs rien qui démontre, que les muscles ne se puissent mouvoir que par le seul action de nerfs. Le principe sentant et les nerfs peuvent avoir avec le sang, et avec les humeurs, des rapports que nous ne connoissons point encore; et ces humeurs plus ou moins altérées, peuvent exercer leur influence contre les parties solides de l'animal.”

1116. “ None of these poisons or noxious powers seem to kill by acting first, upon

§ Vol. ii, p. 171 and 175.

“ the organs of respiration or, upon the sanguiferous system, &c.”

Various have been the opinions, of the nature of these noxious powers, and of the manner in which they produce their fatal consequences. This part of the subject has not escaped the scrutiny of the experimental Fontana. Whilst some supposed that they acted by their excessive elasticity, and others by their total want of it, it was proved, that in many instances of mephites, very little alteration took place, with respect to that quality. Again, it was conjectured that, by the irritation of the bronchial nerves, an universal constriction of the air vesicles of the lungs was induced ; by which their dilatation and admission of air was prevented : or that mephitic vapours contained a vitriolic principle, which acting with a repulsive force upon the elastic particles of the animal fluid, the air vesicles were deprived of their animal spirits, and fell into a state of perfect relaxation and atony. — * “ D’ailleurs les nerfs ne sont susceptibles ni de contrac-

* Fontana loc. cit.

“ tion

“ tion ni d’irritabilité ; et les vésicules du
 “ poumon ne sont point formées de fibres mus-
 “ culaires.”—Their whole energy is, accord-
 ing to this author, exerted upon the heart itself :
 but by the conveyance of the lungs.—† “ Il
 “ peut donc avoir une communication réelle
 “ entre ces airs et le poumon : entre ces airs et
 “ les matieres qui se separent de ce viscere.
 “ Mais le poumon recoit, comme on fait, le
 “ sang du coeur et le reporte au coeur même.
 “ Je ne conçois donc pas pourquoi la commu-
 “ nication ou, pour mieux dire, l’action de ces
 “ airs sur le coeur seroit impossible.”

But leaving this difference, to be accommo-
 dated between the two illustrious authors, we
 may safely conclude that noxious airs do not
 act immediately on the organs of respiration, as
 such, by occasioning suffocation ; because the
 event is too instantaneous : animals that die
 from the mere want of the respirable fluid, as
 under the exhausted receiver of an air-pump,
 struggle for some time : and these vapours have
 all their effects as certainly in the open air as in

† Fontana loc. cit.

confined places ; if the sufferer happens to be situated in the direction of their streams. Van-Helmont, nearly twice destroyed by the fumes of some minerals, which he was subjecting to a chemical analysis, makes no mention of having had his respiration at all affected.

1117. “ It appears to me probable, that the
 “ apoplectic state succeeding an epileptic pa-
 “ roxysm, does not depend upon compression,
 “ &c.”

When fits of epilepsy have been, for some time, frequently repeated, when some degree of fatuity has begun to manifest itself, and when the patient's health seems impaired, and sinking under the numerous shocks given to the sensorium and whole nervous system, we may well suppose that their very texture is so altered by these concussions, for such in fact they are, as to render them, by degrees, less and less apt for the offices to which they are destined ; till at last a complete and general immobility takes place.

But, as persons are subject to epileptic paroxysms when, otherwise, in full health and strength,

strength, and, plethora being one of the most usual predisposing causes, it seems necessary here to hint a caution ; that in early cases there may be pressure from accumulation or extravasation, and that in those of longer standing, from the remora of the circulation, there may be congestion.

1118. “ The same observation may be made
 “ with respect to many instances of hysteric
 “ paroxysm, &c.”

As the same fatal termination does sometimes take place in hysteric, as in epileptic affections, the same caution becomes here more necessary. For experience shews, that persons of a sanguine habit, of an indolent and luxurious mode of life, are most of all subject to hysteric fits : and, that in fact they do most frequently happen to females about the period of their monthly evacuations, when a general plethora most commonly prevails.

“ And the circumstances both of epileptic
 “ and hysteric paroxysms ending in coma or
 “ a degree of apoplexy lead me to think
 “ that the apoplexy proceeding from retro-
 “ cedent .

“ cedent or atonic gout is of the same kind,
 “ &c.”

In forming our judgment, on the real state of the case here proposed, we shall be much assisted by a careful investigation of all the symptoms, previous to the attack. If the patient is an old arthritic, if any gout has made its appearance and suddenly vanished, or if there has been for some time a general weakness and atony, which is very common when the gouty fit does not come on at its usual period, we may safely refer the whole to the agency of misplaced gout acting as a sedative power.

1119. “ It may indeed happen, that as the
 “ apoplectic and gouty predisposition do often
 “ concur in the same person, &c.”

The description given above, of such as are most liable to apoplexy, will be found, upon recollection, to correspond entirely with that of gouty constitution. Therefore, when apoplexy happens to persons in such circumstances, we have only to attend sedulously to the predisposing and exciting causes; and we shall generally be able to determine, with tolerable precision,
 whether

whether the attack is owing to a compression of the brain, or to an affection of the powers of the heart.

1120. “ With respect however to the circumstances which may appear upon the dissection of persons dead of apoplexy, there may be some fallacy, &c.”

We are not however to be deceived by an appearance, on dissection, which seems to strike at the very root of the doctrine now delivered. “ For whatever takes off or diminishes the mobility of the nervous power may retard the motion of the blood in the vessels of the brain ; and that perhaps to the degree of increasing exhalation, or even of occasioning rupture and effusion : so that in such cases the marks of compression may be discovered, though the disease had truly depended on causes destroying the mobility of the nervous power.” In illustration of this idea we are referred to the frequent termination of epilepsy, either in fatuity or sudden death : the first generally depending on a watery inundation of the brain, and the second on an effusion of blood.

blood. Such appearances then cannot with propriety be considered as causes, but as effects of disease; of death indeed they are the immediates.

In all the cases of apoplexy proceeding from frequently repeated hysteric or epileptic paroxysm, or from retrocedent or atonic gout, we are to consider that, the causes acted primarily by weakening the action of the heart, and thus producing a remora in the circulation: and therefore that, however the appearances after death may induce us to imagine that this kind of apoplexy had been the consequence of pressure, we are, by a due consideration of the previous circumstances, clearly authorized to place it in the same rank with those occasioned by sedative powers.

1121. “ The several causes mentioned, in
 “ 1115. are often of such power as to occasion
 “ immediate death, &c.”

Previous to the conclusion of the theory, of apoplexy arising from other causes than pressure, it is remarked that “ They have not
 “ commonly been taken notice of, as produ-
 “ cing

“ cing the disease in question, on account of
 “ its so frequently immediate fatal termina-
 “ tion.” “ But as the whole of these causes
 “ are in their operation similar and analagous,
 “ and as in most of the instances an apoplectic
 “ state is manifestly produced,” professor Cullen
 thinks that “ there can be little doubt in con-
 “ sidering most of the instances of their effects
 “ as cases of apoplexy, and therefore such as
 “ fall properly under our consideration here.”

From this reasoning it appears that he felt some hesitation, whether the two diseases, of apoplexy from mere mechanical pressure on the sensorium, and that disease which is produced by sedative powers, in any way applied,—could be properly treated of in the same chapter, and called by the same name. If indeed we perfectly understand the nature, causes, and curative indications of diseases, it becomes of little consequence what name we give them: but as words are the designations of things, it does seem of importance, towards their being understood, and properly treated, that no two diseases, totally differing in cause and method of cure, should

have

have the same appellation ; distinguished only by their respective epithets, sanguinea and venenata.

1122. “ The disease of apoplexy is sometimes
“ intirely recovered from, but more frequently
“ it ends in death or in a hemiplegia, &c.”

Experience will soon painfully convince us of the truth of this position : and in order to form a prognostic, as to which of these is to take place, we must attend to the consideration of all its circumstances, causes and symptoms.

But it will be proper to remark here, that every apoplectic attack lays a foundation for and makes the patient more liable to a second, and so on ; by the distension which the vessels have already suffered, or by their having been ruptured, and remaining ever after weaker at the points of cicatrization ; or by their exhalant orifices having suffered a dilatation, which they never recover ; and being left in a state of atony, are consequently in future less resisting to any extraordinary impulse. Whence the popular opinion, that a third fit is always fatal, seems to have some foundation.

1123. “ The several events of this disease,
 “ in health, death or another disease, may be
 “ expected and foreseen from a consideration,
 “ of the predisponent circumstances, 1095. of
 “ the antecedent symptoms, 1096. of the ex-
 “ citing causes, 1098. of the violence and de-
 “ gree of the symptoms, when the disease has
 “ come on, 1094. of the duration of the disease,
 “ and of the effects of the remedies employed.”

Without a due consideration of all these, and their various combinations, it will be impossible to form any prognostic on the event of apoplexy.

If we compare the directions here given, with the method proposed by the celebrated Boerhaave, for forming our judgment respecting the event of this disease, we shall find abundant reasons to be satisfied. He says, aph. 1015.
 “ Magnitudo igitur apoplexiæ censetur ætate,
 “ temperie, fabricâ ægri.”—Old age is with us enumerated amongst the first of the predisposing causes; but not because, according to Van Swieten,—“ in his, iners glutinosa materies in
 “ cavis cerebri colligitur;”—but because the
 F venous

venous plethora has now fully and effectually taken place: nor shall we perhaps be induced to place much more reliance on the temperies atrabilaria,—“ quia, vel picea tenacitate sanguis hæreret incipit in vasis encephali, vel materia atrabilaria mota, et acris reddita, citissimè omnia destruit.” — Proceeding to aph. 1017. we read—“ Lenis apoplexia solvitur superveniente, &c. febre magnâ,” in commenting on which Van Swieten after advancing —quod per febrim cruda mutantur in cocta, &c.—becomes more guarded and says—“ non enim prodesse omnibus apoplexiæ causis enumeratis febrim, facile patet. Si enim a plethora, vel effusis humoribus ob rupta vasa, nata fuerit apoplexia, febris augetur malum. Verum tunc imprimis videtur sanatio hujus morbi per febrim natam sperari posse, ubi pituitosa, iners, sanguinis cachochymia, apoplexiam produxit.—But if serous apoplexy, as well as sanguineous, is the product of a plethoric state of the vessels of the encephalon, we cannot readily assent to the opinion of its being cured by supervenient fever. If the cure of
apoplexy

apoplexy can ever have been wrought in this manner, it must have been, in those cases only, where the equable circulation of the vital fluid, from an imbecility of the heart; and not the sensorium, from the pressure of distended blood vessels; was primarily and principally affected.

Having sat out with the professed design of comparing the Cullenian system with others, particularly the Boerhaavian, I hope that it will not be deemed invidious to have brought forward, what seem to be, the errors of two writers of such distinguished eminence as professor Boerhaave and his ennobled commentator. My plan would otherwise have been essentially defective, as, I suppose that, on the false ideas above quoted, and such like, has been founded the torturing and destructive practice, which every man of observation must recollect the having been often witness to.

1024. “ From the great danger attending
 “ this disease, when it has come on, it will
 “ readily appear that our care should be chiefly
 “ directed to the prevention of it, &c.”

The great danger of apoplexy has been confirmed by the experience of all ages, and by the sentence of all the writers on the subject.—
 “Vehementem quidem apoplexiam solvere impossibile; debilem vero non facile”—is an aphorism of Hippocrates. How necessary then to turn our thoughts to the prevention of it! And happily in many cases there are sufficient notices to put the wise and cautious on their guard. These are distinctly enumerated in section 1098.

Even without any of these previous symptoms, it surely is worth the while for persons who are, by their time of life, by their mode of living, or by their make and constitution, more particularly exposed to apoplectic insults, to consider the danger of their situation, in due time. The remote or occasional causes, detailed at section 1108. may be avoided by almost every one: but, the predisposing cause, a plethoric state of the blood vessels of the brain, is not so easily obviated: it has been, most likely, long existing and has grown into the constitution so deeply, as not to be eradicated without much
 resolution

resolution and self denial. However a great deal may be done by a proper management of exercise and diet.

1125. “ The exercise ought to be such as
 “ may support the perspiration without heating
 “ the body or hurrying respiration, and there-
 “ fore commonly by some mode of gestation,
 “ &c.”

In looking back to the Sanctorian doctrine of perspiration, we shall find it asserted, and proved by statical experiments, that this one insensible evacuation equals in quantity all the sensible ones collectively. Health therefore must very much depend on a due state of it. The consequences of its sudden repression, by cold or otherwise, in producing fever, inflammation, &c. are every day manifested, and to almost every one known. But that this very necessary evacuation is not properly carried on, except when the solid fibres of the body are supported in a certain degree of tension, is neither so obvious nor has been so generally attended to. Farther observations and experiments have been necessary to prove, and they

have proved beyond a doubt, that continued habits of indolence and inactivity have produced such a languor in the moving powers, that this salutary excretion has been almost entirely suspended. Under such circumstances, if the power of the constitution has not been sufficient, to throw off the accumulated load by a strong derivation of it to the grosser emunctories, of the alvine or urinary system ; what a quantity of crudities must be thrown back, into the circulating blood, may be easily imagined : and how, by this, the sanguineous vessels, particularly of the brain, may at a certain time of life, be overloaded, obstructed, ruptured.

Yet however necessary exercise may be, to promote perspiration and guard against apoplexy, it is evident that it should be undertaken, by persons at all predisposed, in the most cautious manner. For, in the state which we are now supposing, whatever heats the body and thereby, rarefying the blood, increases the action of the arteries ; and whatever quickens the respiration and thereby prevents a free return of
it,

it, by the veins from within the cranium, must be attended with the most imminent danger.

Some mode of gestation therefore is generally preferred: and, for persons not subject to frequent fits of giddiness, and accustomed to riding on horse-back, that exercise above all others. Walking, being attended with more muscular exertion, is liable to the dangers before hinted at; and because it is more fatiguing, cannot be persisted in so long: still under the necessary restrictions, as it is a natural, it is also a healthful exercise. In persons pretty far advanced in life, and of very corpulent habits, all bodily exercise should be moderate: sailing in a boat upon a smooth river, and riding in some vehicle, are perhaps the only means admissible; lest we convert a prophylactic remedy into an occasional cause of disease. Wheel carriages, more or less open according to the season, and more or less rough according to the state of the patient, are happily within the reach of most persons in middling circumstances.

1126. “ In persons who pretty early in life
“ shew the predisposition to apoplexy, it is

“ probable that a low diet, with a good deal
 “ of exercise, might entirely prevent the dis-
 “ ease, &c.”

Considering the case of those, who in early life manifest a disposition to apoplexy, we cannot forget what has been adduced respecting the two states, of arterious and venous plethora, in contradistinction to each other. We are then naturally led to the conclusion that, in the case before us, it is arterious plethora which is now the predisposing cause: and, as such, that we have more to expect in the prophylaxis and cure both from art and nature.

From nature, because she is yet vigorous and unhurt by any long habits of indolence or epicurëanism, and because, in her ordinary course, she is every day going on to shift the balance of strength from the venous to the arterious system. So that if the apoplectic attack has not been made, and if the modes of life are not diametrically opposite to what, in such persons, they ought to be, the very changes, which necessarily take place, may be sufficient to correct the predisposition. Who cannot
 recollect

recollect many instances of persons, about their state of adolescence, subject to frequent fits of vertigo, of incubus and of head ach; which complaints have vanished as they advanced in life, and then have been said, without more reflection, to be worn out? But what are all these, but symptoms of apoplectic predisposition?

From art or, more properly speaking, from a judicious attention to regimen and application of medicine, in this state of things, much may reasonably be expected: considering that yet, the whole constitution retains all its vigour and pliancy, bad habits are not inveterated and become a second nature; and, above all, the venous plethora has not yet taken place. It is indeed the disease of too much health. Whilst the appetite is good, the chylo- and hæmato-poiëtic viscera sound and active, the whole of the food consumed is assimilated into blood, and the expenditure of the body is exceeded by its supply. Here then a rigid abstinence may be allowed, and exercise carried on even to the degree of labour: but the first ought
always,

always, for some time, to precede the other; and this last increased to the point proposed by due gradations, and with attentive caution.

When things are farther advanced before proper steps have been taken, as it is easy to see that, if Nature when left to herself does not cure the predisposition by rendering the arterious equal to the venous system, the same vigour of constitution will go on to produce a plethora in the veins; we may now suppose the patient to have indulged in good living; and to have acquired that corpulency of habit before adverted to. In this state a very low diet immediately instituted would be unsafe: the constitution has been accustomed to the adventitious stimulus of generous food, and all the powers of nature would languish, if the change was made too suddenly: and the consequences of a slow and languid circulation have been already pointed out.

Moderation in diet is now all we can insist upon, and this especially respecting animal food, “which should be abstained from altogether at supper.” If so much caution is requisite,
in

in regard to eating, less cannot be dispensed with, in the use of heating liquors ; “ spirits “ by fermentation or distillation :” their effects are indeed more sudden, but not more certain, and yet, even here, some regard must be had to old customs ; but the danger of, the smallest approach to, intoxication needs but barely to be mentioned.

“ The large use of tobacco, in any shape, “ may be hurtful.” By smoaking or chewing there is a great expence of saliva, and the body is too much drained of its moisture, by which the blood becomes, to a degree inspissated and, less fit to flow freely through the capillary vessels. And persons, never so much accustomed to it, will be sometimes sensible of sickness, vomiting, vertigo and drowsiness from its use. * “ Sed hoc maximâ saltem ex parte “ viribus narcoticis medicamenti plane tribu- “ endum est.”—All which effects may have, in the case are now describing, the most alarming consequences. “ Where it has been accustomed “ to occasion a copious excretion from the

* Med. Theor. 522.

“ head,” that is when used as snuff, “ the
 “ interruption of it might not be safe :” it has
 become, in the animal œconomy, a necessary
 excretion, and being suddenly checked would
 occasion a redundance, which nature might not
 immediately find an outlet for. But even now,
 when the continuance of its use may be in some
 degree proper, it should be rendered as mode-
 rate as possible : it is still a narcotic occasionally
 or a stimulant ; may give rise to vertigo and
 dizziness ; and in those longest habituated to it,
 may bring on a fit of sneezing ; a kind of con-
 vulsion than which nothing can be more dan-
 gerous, in this case.

“ For ordinary draught small beer is pre-
 “ ferable to plain water, because the latter is
 “ more ready to induce costiveness :” in apo-
 plectic habits ever to be carefully avoided.

1127. “ Evacuations by stool may certainly
 “ contribute to relieve the plethoric state of the
 “ vessels of the head, &c.”

Of the great and sudden power of depletion
 possessed by cathartic medicines, we shall have
 occasion to be more full, when we come to that.

part

part which treats of the cure of apoplexy, present and complete.

As a prophylactic the Professor admits of eccoprotics only, and of these only to obviate costiveness; or when any unusual turgescence appears. The rougher purges, commonly called drastic, heat the body and accelerate the circulation; both, in these circumstances, of dangerous tendency: and a course of large purging would weaken the body; the probable consequence of which in apoplectic predisposition has been often pointed out.

“ In the summer season it may be useful to
 “ drink every morning of a gentle laxative
 “ mineral water, but never in large quantity.”

The object here is cooling and diluting, therefore the chalybeates in general are out of the question: such as are impregnated with sulphur and sea-salt, if they pass off readily, seem to be the most proper: and the danger, of using any of them in too large quantity, may be easily known from what has been heretofore advanced.

1128. “ In the case of a plethoric state of
 “ the system, it might be supposed that blood-
 “ letting would be the most effectual mean,
 “ &c.”

When an attack of apoplexy is immediately threatened, bleeding is indeed the remedy chiefly to be depended upon; and blood should be drawn in large quantity, from the jugular vein or temporal artery. But, when no threatening turgescence appears, blood-letting is not judiciously employed to obviate plethora, because it has a tendency to reproduce it: which is clearly demonstrated by our learned Professor in section 748. and being so I shall not here repeat it. In such circumstances leaches applied to the temples, or cupping with scarification on the hind-head, being topical evacuations only, may be safer; as they will in general be sufficient to answer the purpose; and are not so capable of disposing to a future fulness as more general bleedings.

1129. ----- “ A seton or pea issue
 “ near the head may be very useful in obviating
 “ any turgescence of the blood.”

When

When speaking of these artificial drains, as preventative of apoplexy, it is impossible not to recollect the remarkable case, given in the *Edinburgh Essays*; quoted also by Van-Swieten. A boy had been rendered apoplectic by a fall, from a horse, in which the brain had received violent concussion, without fracture of the cranium: in three weeks and more from the accident, though he had recovered his health and strength, his memory was entirely obliterated; but in eight days from the putting in of a seton at the neck his recollection and judgment were restored. We have likewise the testimony of many authors for the good effects of setons, placed in the breast or side, on suspicion of purulent collections between the lungs and pleura. It will hardly be imagined, at this time, that these are endowed with properties of making an elective discharge: indeed in this case they are not recommended for the cure, but for prevention.

The effect of long standing ulcers in obviating partial turgescence, topical inflammation and general fever, is known to every one:

abstracted

abstracted from their irritation, by which they ever invite a larger flux of humours towards them, the cuticle, the general sphincter of the whole superficies, being at those places not intire, the redundant fluids are always disposed to escape by them: “*quâ datâ portâ.*”

1130. “These are the means to be employed
“ for preventing apoplexy,—and, if at the same
“ time great care be taken to avoid the exciting
“ causes, will be generally successful, &c.”

It is almost unnecessary to observe that, what has been said, under the last six sections, respecting the prophylaxis, applies only to those cases of apoplexy, which arise from a plethoric state of the vessels of the brain. And we are happy to find, in the opinion of so good a judge, that the means proposed will be generally effectual, if the occasional causes are carefully avoided.

That kind of apoplexy produced by the causes, recited at 1115. which, as was there said, are immediate and preceded by no pro-
ëgumenics, do therefore, from their nature, hardly allow any opportunity of prevention.

1131. " For the cure of apoplexy, from internal causes, the usual violence and fatality of it require, that the proper remedies be immediately and largely employed, &c."

Previous to the exhibition of medicine, the proper placing of an apoplectic patient is to be considered; and these directions strictly attended to: " keeping him as much as possible in somewhat of an erect posture, and in cool air." By such a position the impulse of the blood toward the brain is lessened and its return by the jugular veins promoted. The turgescence of the blood, and its increased momentum and velocity are restrained, in this case, as well as in fevers, by the free admission of fresh and cool air. But these advantages are not to be obtained " in a close warm chamber; nor in a horizontal posture, under a load of bed cloaths; nor surrounded by a crowd of people."

1132. " In all cases of a full habit and where the disease has been preceded by marks of a plethoric state, blood-letting is to be immediately employed, and very largely, &c."

G

All

All the authors, from Hippocrates to Boerhaave, have agreed as to the necessity of immediate and plentiful bleeding, in the case which they have distinguished by the title of sanguineous apoplexy: but unfortunately they have mixed with their theory the, now almost obsolete, ideas of sulphurs and salts in the blood, and of its temperaments. Of the four grand divisions of temperament, the atrabilious has been esteemed, in this disease, the most dangerous. * “Ita atrabilaria temperies hujus morbi
 “discrimen auget, quia, vel *piceâ tenacitate*
 “sanguis hæerere incipit in vasis encephali vel
 “materia atribilaria mota et acris reddita citissime omnia destruit.” † “Partes sulphuriæ,
 “salesque maxime acres, intra optime saginatam
 “sanguinis massam exaltari solent; quia sales,
 “&c. musculares membranas duræ matris, &c.
 “impingunt, exinde libera tollitur ipsius sanguinis circulatio; quam vasorum interceptionem vocavit Hippocrates: qui sane primus
 “hiscæ in casibus phlebotomiam laudavit.”

* Van Swieten in Aph. 1015.

† Lancini Mort. Sub. 186.

Is it possible to reason in this manner and to practise right?—Let us see.—The last mentioned author who has, on the whole, written well on the subject, in conformity to his theory, goes on thus—“*Ea omnia, in corporibus bene nutritis,*
 “ *juvamen attulerunt, quæ ad superficiem cor-*
 “ *poris illam revellere potuerunt irritationem.*
 “ *Idcirco ex usu fuerunt non solum frictiones*
 “ *sed φουγγμοι quoq; et vesicantia plantis pedum*
 “ *artubus et occipiti.*”—When Boerhaave has divested himself of his atrabilious temperament and pituitous cachochymy, nothing can be more correct than his curative directions in aph. 1030. And his learned commentator seems to lament the difficulty of following in practice the rules which the celebrated Professor has laid down: for on this passage he observes—“*Quantâ cum prudentiâ*
 “ *stimulantia, acria medicamenta adhiberi de-*
 “ *bent in apoplexia lenta et frigida dictum*
 “ *fuit.—Verum, in illa specie de qua nunc*
 “ *agitur, certo et semper hæc nocent pariter*
 “ *monitum fuit. Interim tamen apud mag-*
 “ *nates hæc tanquam sola remedia commendari*

* Van Swieten in aph. cit.

“ solent, et famæ periculum medici incurrunt si
 “ hæc illico non adhibeant in corporibus etiam
 “ repletissimis. Frequenter etiam contingit ut
 “ hæc jam plenâ manu applicata fuerint ante-
 “ quam medicus adesse potuerit.”

It has long been matter of surprize and regret with me, that the very judicious Hoffman †, who seems perfectly to have understood this disease and has distinguished it by a name, Hæmorrhagia Cerebri, the least likely of all others, one would think, to favour the deceptive ideas of stagnation, torpor and the like, should propose, after blood-letting indeed and other evacuations, different articles, with the view of restoring vigour to the vessels and renewing circulation, both externally and internally. The volatile alkaline salts, either in a fluid or solid state, in different ways to be applied to the internal membrane of the nose; stimulant cataplasms, whipping with nettles, and blisters to different sensible parts of the surface; particularly to the soles of the feet.

† Practice, by Lewis and Duncan.

This is the *medendi methodus* of the most celebrated writers hitherto, even in the sanguineous apoplexy, so acknowledged and denominated by themselves: when we come to speak of serous apoplexy we shall find these intentions pursued to a greater and more dangerous length. What curative intentions can be suggested by the preconceived notion, of acrid salts and sulphurs in the blood, of an atrabilious temperament, inspissating the blood, so that it adheres to the sides of the vessels and obstructs them, or of the same matter set at liberty, and acting as a septic ferment, destroying every thing? This indeed is confusion and contradiction and sufficiently demonstrates the necessity of reconsidering the subject, and of establishing a pathology more agreeable to the simplicity of nature and of truth.

----- “ It will be most effectual when the
 “ blood is taken from the jugular vein. The
 “ opening of the temporal artery, when a large
 “ branch can be commanded so as suddenly to
 “ pour out a considerable quantity, may also
 “ be an effectual remedy; but in execution it

“ is more uncertain and may be inconvenient.”

The only objection, which I have heard, to the opening of the jugular vein, is the necessity of applying a ligature round the neck, which, it was feared, might obstruct the return of the blood in all the veins of the neck: but this is easily avoided by passing the ligature in an oblique direction towards the opposite scapula and breast, there to be held by the hands of an assistant, or fastened in the axilla: and thus no other vessel is compressed, except that designed to be opened. As these veins are immediately derived from the sinusses of the dura mater, it appears that all the vessels of the brain may be sooner depleted in this, than in any other way.

The temporal artery is only a superficial branch of the external carotid, and does not convey blood into the cranium, but by some small anastomosing branches; being spent for the most part externally, on the involucra of the head: therefore, if opened in the most successful manner, cannot much diminish either the quantity or impetus of the blood, towards
the

the brain. The execution of it is uncertain. This vessel often runs deep under the teguments: if it is totally divided, the two ends are mutually retracted from each other, by the elasticity of the muscular coat; the openings are closed, and after a pretty full gush of blood, it ceases to flow. If the vessel is only punctured, an inconvenience often arises from the orifice not being easily closed, without much pressure, and a tight ligature which, at the same time compressing all the veins of the scalp, should if possible be avoided; especially as it will occupy the place of the blistering plaister, which ought immediately to be applied here. The method recommended by Dr. Butter seems to be an improvement, by which the opening of the temporal artery is rendered more effectual as well as safe.

But considering the cases which he has adduced, it will perhaps be thought that the relief which the patients obtained was to be attributed rather to the very large quantity of blood lost, sometimes unintentionally, than to

the particular vessel from which it was drawn : and the star-bandage is still in the way §.

----- “ It may be in some measure supplied “ by cupping and scarifying, &c.”

As a topical evacuation this may greatly and suddenly relieve the vessels most overloaded ; and is much preferable to the application of leaches, both on account of the stronger derivation, and the larger quantity of blood which may be thus taken. It should indeed be hardly ever omitted, and may be then, with great propriety and advantage called in aid, when we begin to doubt of the strength of our patient to support more general bleeding.

----- “ With respect to every mode, the “ blood-letting, if possible, should be made on “ the side opposite to that most affected.”

As it frequently happens that, in apoplexy, one side of the body is more affected with loss of motion than the other ; when it can be perceived, the bleeding ought always to be on the least affected side ; because, from the decussa-

§ Vide Dr. Butter's Improved Method, p. 27, 55, &c.

tion of the medullary fibres of the brain, we know that this side of the body corresponds with the oppressed hemisphere; no such decussation taking place in the blood vessels. Besides, as the nervous influence remains in this side more intire, the circulation is there less languid and the blood is more likely to flow in a full stream.

It having been sufficiently demonstrated, in the preceding pages, I hope to the conviction of every one, that serous apoplexy, as it has been called in contradistinction to the sanguineous, has for its proximate cause a plethoric state of the blood vessels of the brain: it clearly follows, that some blood-letting is proper and necessary even in this, and that a loss of blood, proportionate to the strength of the patient, can be improper in no kind of apoplexy, from an internal cause, except when it depends on hydropic diathesis or incurable ischuria.

But in the case immediately before us, where we suppose a full habit, and every mark of plethora, to have preceded, blood-letting is the *sine qua non*; and we ought not to be satisfied, with

with having taken away a few ounces, or with a single bleeding: the operation ought to be repeated, again and again, even to the taking away of some pounds.—* “Cullenus aliquot libras cum fructu detractas vidit.”—Remembering in this case the words of Mr. Pott, in his *Treatise of Concussions of the Brain*, that one repetition of this operation neglected, or performed, often makes all the difference between the recovery of the patient and his death.

1133. “Another remedy to be employed is “purging, &c.”

Of gentle eccoprotic purges, as prophylactics, we have already spoken: but they have no place here, when the disease is already present and complete.

Whatever will most immediately, and with least agitation, empty all the reservoirs of the body is, after bleeding, to be next employed. Cathartics, not only evacuate the stomach and bowels of their contents, and thereby give more room for the blood to flow by the aortic system, but, by taking off the pressure on the sides of

* *Praxeos Syft.* T. 2. P. 237.

all the veins, render its reflux slower: and, by carrying off with them much of the thinner fluids, diminish the general quantity, and relieve the tension in the whole of the sanguiferous vessels: thus producing an universal inanition. This effect cannot be doubted of by any one, who has attended to the consequences of long continued brisk purging: by which the most florid and athletic are soon reduced to leucophlegmacy and feebleness. And if we adopt the reasonable hypothesis, of the late Mr. Charles Darwin, of the occasionally retrograde motion of the fluids in their respective channels, it will furnish us with very extensive notions of the consequences of purging.

Medicines of this sort, however useful and necessary, are yet to be exhibited with caution. Some of the cathartics, which come under the head of drastics, are very apt to irritate the whole habit, to increase the heat and circulation: such are therefore to be suspected. But, in a case like this, where immediate depletion is so much wanted, and where the getting down of any medicine is attended with so much difficulty,

ficulty, there can be no doubt of the propriety of employing an active one: “always however
“in small doses, least they may excite vomit-
“ing,” and repeating them according to the
necessity.

The first passages may be emptied, and a very considerable flux of humours derived to the bowels, “by glysters;” which, if the power of swallowing is lost, are our only resource. These, as their stimulus will not be exerted much beyond the parts to which they are applied, should be of the most active ingredients, and may be made sufficiently acrid without danger. The only inconveniences attending their frequent repetition seem to be, the disturbance which they occasion and the necessity of, from time to time, putting the patient in an unfavourable posture.

1134. “Vomiting has been commended;
“but apprehending that this might impel the
“blood with too much violence into the vessels
“of the head, I have never employed it.”

It often happens that the attack of apoplexy is immediately after a full meal; and as it is
notorious

notorious that those persons, who indulge much in the gratifications of the table, and often complain of indigestion, nausea and sickness, the consequences of repeated *crapula*, are most subject to this disease; and, as a spontaneous vomiting frequently comes on, and where the attack is owing principally to such occasional causes, and is not in the most violent degree, that the patient is relieved by it; less wonder arises, that physicians have thought proper, sometimes, to imitate this effort of nature.—

† “*Sin autem nauseabundus sit, id non prohibeto: nam illa intentio vigorem quemdam ad expergefaciendum præstat, et pituitæ vomitus morbi causam evellit.*”—Much more authority, and of the first medical rank too, might readily be adduced in support of this practice: but a moment’s reflection, on the action of vomiting, will be sufficient to annihilate all its weight. For instance, a long and deep inspiration is first necessary, expiration is suspended, the abdominal muscles are strongly contracted, and the stomach and bowels pressed upward:

† *Aretæus de Morb. acut. cur.*

by all which a larger quantity of blood is propelled toward the brain, at the same time that every impediment is given to its free return. In the sanguineous apoplexy therefore, it becomes an operation of the extremest hazard; and in the serous, if it has been in any measure proved that it too depends on a plethoric state of the veins of the encephalon, cannot be safe. Boerhaave ‡, of serous apoplexy, says—"lentâ,
 "inerti, frigidâq; causâ oritura vomitoria, &c.
 "certo determinata huic scopo satisfaciunt."—
 Not so his more guarded commentator,—§ "ta-
 "men in ipso actu vomitûs, ut jam sæpius
 "monitum fuit, humores, magnâ copiâ et
 "impetu, versus caput feruntur: adeoq; hic
 "affectus repugnat primæ indicationi, quæ
 "pressionem glutinosi a capite avertendum
 "jubet."

1135. "Another remedy to be immediately
 "employed is blistering, &c."

The very signal benefits derived from vesicatories, applied to, or as near as possible to, the

‡ Aph. 1023 & 1026.

§ Van Swieten Com. in eodem.

parts affected, in relieving local inflammation and congestion; is deservedly reckoned amongst the most useful of the discoveries of the present age.— * “ Partim stimulo suo, partim exinanitione ipsâ, sanguinis cursum et distributionem aliquantum mutant, nimirum qui ab aliis partibus, præsertim vicinis, avertitur; adque illam, unde exinanitio fit vel cui vesicatorium imponitur, copiosius derivatur. Hoc modo nimiam et abnormem arteriarum partis cujusvis actionem sæpe temperant et cohibent, et spasmus solvunt, non modo arteriarum, sed et aliarum partium.”—But as the use of topical blistering was not till lately understood, we shall find, in considering the ideas of authors who have prescribed them, in other diseases as well as in apoplexy, that they depended on their effects as stimulant or revulsive. In this last view blistering plaisters, to be applied between the shoulders and to the calves of the legs, are at this day, even in the sanguineous apoplexy, advised by Dr. Buchan†. -

* Greg. Med. Theor. T. 2. P. 595.

† Domestic Medicine, p. 448.

----- “ I judge that this is more effectual
 “ when applied to the head, or near to it, than
 “ when to the lower extremities, and do not
 “ consider it as a stimulant, or capable of
 “ making any considerable revulsion.”

Whoever has attended to the different effects of vesicatories, accordingly as different parts of the surface have been made choice of for the application of them, may have observed, that they occasion less pain and uneasiness when applied to the head, than to any other part : for which reason they do not act as general and diffusive stimulants. But when other parts, particularly the extremities, are subjected to their operation, they do often give rise to so much pain and inflammation, in irritable habits, as to accelerate the circulation very considerably. Neither can we reasonably place much dependence on their revulsive powers, particularly in sanguineous plethora, when we reflect on the great proportion, of the discharge, which is supplied by the glands of the skin.

----- “ But applied to the head I suppose
 “ it useful in taking off the hæmorrhagic dispo-
 “ sition so often prevailing there.”

Though

Though vesicatories applied to the head, do not act as stimulants of the whole nervous system; nor as revellents, so as to be capable of lessening the quantity in any part of the sanguiferous, to a considerable amount: yet, by deriving the nervous influence to the surface, they do occasion a greater afflux toward the superficial capillaries; and thereby relaxing the spasm, on the larger and deeper seated arteries, appease the impetus of the circulation and take off the disposition to hæmorrhage.

1136. “ It has been usual with practitioners,
 “ together with the remedies already mentioned,
 “ to employ stimulants of various kinds; but
 “ I am disposed to think them generally hurt-
 “ ful, &c.”

It has been already proved by many citations, which might easily have been multiplied, that several authors, and those of no inferior note, have employed various stimulating medicines, in conjunction with evacuants, even in the sanguineous apoplexy. But, if this disease arises from fulness of the vessels of the brain, and increased impetus of the blood in them, then,

H

both

both ought to be diminished; and every thing of this sort avoided: “cane pejus et angue.” But we cannot justly include, in this list, either Boerhaave or his commentator. They have both cautioned us against the use of stimulants, in sanguineous apoplexy; though in ferous, they have been liberal in recommending them.

----- “If however we are right in alleging
 “that ferous apoplexy also commonly depends
 “on a plethoric state of the blood vessels of
 “the brain, stimulants must be equally im-
 “proper in the one case as in the other.”

That professor Cullen is right in this opinion, I am decided by the conclusions of my own proper experience; if it was not clearly proved a priori, by the physiological arguments heretofore advanced.

It is in this point that he differs most essentially from his predecessors; and, in a matter of so much moment, it very much behoves the practitioners of the present day, to consider well the arguments which he has brought in support of his doctrine. The names of Boerhaave and Van Swieten have been hitherto held up as
 sovereign

sovereign authority, in the decision of all medical controversy, and have been regarded, on most occasions, with deserved attention. But no authority can sanctify mistake. The progress of the human mind is slow in its development of truth; and if the two celebrated physicians, above named, have here judged amiss, we ought not to forget our great obligations to them, for their abundant instruction on other heads: had they lived at this time they would probably have thought with professor Cullen. We must however enter our protest against the following.—* “*Naribus, ori, capiti applicanda*
 “*omnia quæ sensus excitare quæant; acerrimi*
 “*usurpandi stimuli quicunq; &c.*”—† “*Præter*
 “*vesicatoria, applicant plantis pedum acria*
 “*epispastica ex seminibus sinapi contusis, ra-*
 “*phano rusticano. Imo nullus morbus forte*
 “*est in quo ægri majis vexantur, et quidem*
 “*merito, &c.*”

I cannot help bringing forward the directions of Dr. Home ‡ in the same case—*Si obstructio*

* Boerhaave, Aph. 1028.

† Van Swieten in eund.

‡ Principia, p. 227.

“ oritur a fero nimis viscido, tollitur revocando
 “ a cerebro. Revocatur, venæ sectione parcâ
 “ manu celebrandâ, vel hirudinibus temporibus
 “ applicatis; vomitu; clysmatibus et purgan-
 “ tibus acerrimis; spiritibus volatilibus et ster-
 “ nutatoriis naribus applicatis; pediluviiis;
 “ actuali cauterio cervici admoto, &c.”—And
 again, when speaking of the other soporose dis-
 eases, according to their usual distinctions, coma,
 cataphora, lethargus et carus, which he pro-
 perly denominates leviores apoplexiæ, he tells
 us, —§ “ Curantur, excitando ægrum e sopore,
 “ odore foetido, stimulantibus cataplasmatibus,
 “ et clysmatibus acerrimis, sternutatoriis, vesi-
 “ catoriis, scarificatione, frictione, &c.”

With these guides before us and, till the
 present, we had none of higher confidence,
 it is not wonderful that we sometimes erred.—

“ Humanum est !”

1137. “ It may be argued, from the almost
 “ universal employment of stimulants, and
 “ sometimes with seeming advantage, that they
 “ may not be so hurtful as my notions of the

§ Principia, p. 227.

“ causes

“ causes of apoplexy lead me to suppose. But
 “ this argument is, in several respects, falla-
 “ cious, and particularly in this, that in a dis-
 “ ease which, under every management, pro-
 “ ceeds so quickly to a fatal termination, the
 “ effects of remedies are not to be easily as-
 “ certained.”

Perhaps it cannot absolutely be denied, that some apoplectics have recovered with whom stimulants have been used: the number however will be found to be small, and, even with this favoured few, it may be apprehended that some fortunate occurrences had intervened: either the attack of the disease was moderate; the infarction of the blood vessels not much, the effusion, if any, not great; or a spontaneous bleeding took place, either from the nose or hæmorrhoidal vessels. Instances of extraordinary efforts of nature are not wanting, by which she surmounts her diseases, and the errors in the treatment of them also.

I cannot however subscribe to Van Swieten's opinion, that * “ if the stimulating medicines

* Comm. in Aph. 1028.

“ made use of in this case are applied in vain,
 “ the pain of them is not felt, as the sick are
 “ deprived of sensation.” I have seen apoplectic patients, revived in a good degree by immediate and liberal blood-letting, precipitated again into apoplexy, by the stimulating medicines externally and internally made use of; and, though deprived of the power of speech, exhibiting the most unequivocal signs of pain, even to the last, by the continual restlessness and contortion of those limbs and muscles which were not yet rendered paralytic.

1138. “ I have now mentioned the several
 “ remedies which I think adapted to the cure
 “ of apoplexy arising from compression, and
 “ should next proceed to the cure of apoplexy
 “ from those causes which directly destroy the
 “ mobility of the nervous power, &c.”

Having gone through with the definition, nature, causes and cure of all the soporose diseases, arising from compression on the origin of the nerves; except palsy, when the sequel of apoplexy; (which is to be separately treated of,) we are conducted to the cure of a disease
 much

much resembling the foregoing in outward appearance, but distinct in its nature and requiring a different method of cure : the several causes of which were enumerated under sections 1095. 1097. 1098.

----- “ But many of those causes are often
 “ so powerful, and thereby so suddenly fatal,
 “ as hardly to allow of time for the use of
 “ remedies : and such cases have so seldom been
 “ the subjects of practice, that the proper re-
 “ medies are not so well ascertained, as to
 “ enable me to say much of them here.”

1139. “ When however the application of
 “ those causes is not so powerful as immediately
 “ to kill, and induces an apoplectic state, some
 “ efforts are to be made to obviate the conse-
 “ quences and to recover the patient : and even
 “ in some cases where the causes referred to, from
 “ the ceasing of the pulse and respiration, and
 “ from a coldness coming upon the body, have
 “ induced an appearance of death ; yet if these
 “ appearances have not continued long, there
 “ may be means of recovering the persons to
 “ life and health.”—Boerhaave gives up patients

in this situation entirely.—“ Si vero a venenis
 “ producta fuerit nulla hæctenus medela de-
 “ scripta habetur †.”—“ Remedia huic malo
 “ non inventa sunt †.”

----- “ I cannot indeed treat this subject
 “ completely, but for the cure of apoplexy,
 “ from several of the causes mentioned, shall
 “ offer the following general directions.”

Though our author, with a diffidence and
 candour to be found only in the truly learned,
 says here that he cannot treat this subject com-
 pletely, he has given us the sketch of a most
 judicious plan: which, like the outline of
 Zeuxes, discovers the hand of the master.

(1.) “ When a poison capable of producing
 “ apoplexy has been recently taken into the
 “ stomach, if a vomiting spontaneously arises,
 “ it is to be encouraged; when it does not, to
 “ be immediately excited by art; in order that
 “ the poison may be thrown out as quickly as
 “ possible.” Under this head we are to con-
 sider the effects, of opium and of some other
 narcotic simples in the vegetable kingdom, and

† Aph. 1035, and Praxis, V. 4, P. 323.

in the mineral, principally lead and its various preparations: the *venena frigida* of the ancients.

It happily is so ordained, that the most powerful sedatives, by their destroying the balance of sensibility between different orders of nerves, or by occasioning an unequal cessation of the motion of the blood, frequently become indirect stimulants, and a vomiting is spontaneously induced. When this does not happen, there can be no doubt of the propriety of exciting it by all the means in our power. In these cases, from the diminished irritability, the common emetic, *ipecacuanha* seems scarcely active enough, emetic tartar or white vitriol may be preferable; as no time ought to be lost.

----- “ If, however, the poison has been
 “ taken into the stomach long before its effects
 “ have appeared, we judge that, upon their
 “ appearance, the exciting of vomiting will be
 “ useless, and may, perhaps, be hurtful.”

We must not lose sight of the *modus operandi*, by which professor Cullen supposes that
 narcotic

narcotic poisons and sedative powers produce, what he has justly denominated the true apoplectic state; congestion and stagnation in the blood vessels of the brain. Dr. Mead mentions the having taken a large coagulum of blood, out of the longitudinal sinus of a dog, which he had killed by opium. Therefore, when the poison has been taken long enough to produce this effect, the action of vomiting may tend rather to aggravate the disease, by increasing the congestion, than to relieve it.

(2.) “ When the poison taken into the stomach or otherwise applied, has already induced an apoplectic state, it will generally be proper to relieve the congestion, by taking some blood from the jugular vein, or veins of the arm.”

Here again the true apoplectic state is supposed, in which, when complete, vomiting has been justly prohibited; and bleeding becomes again necessary.

(3.) “ Upon the same supposition of a congestion in the brain or lungs, it will be generally proper to relieve it by means of
“ acrid

“ acrid glysters, producing some evacuation
 “ from the intestines.”

The utility and even necessity of emptying the bowels was sufficiently urged, under the head of genuine apoplexy; and it is equally indispensable here.

But the whole scope of relief, to be obtained by applications to the bowels, is not completed by merely emptying them of their contents. It is to be remembered, that the intestinal canal retains its warmth and sensibility longer than the fleshy muscles, or any of the other viscera; that, by their means, a warm stimulating glyster proves an exciting fomentation to all the interior parts; and that the heart itself is known to be affected by acrid injections, thrown strongly into them, sooner than by almost any other means; especially as in this case the power of swallowing is often very imperfect, and sometimes totally lost.

When lead or any of its preparations, have been the means employed, an attention to the state of the bowels is the more necessary; from the well known specific power of this mineral
 in

in producing costiveness. § “ Cathartics of the
 “ antimonial kind, or of jalap and mercury, in
 “ larger than ordinary doses, should be given
 “ and repeated for some time. If an hyper-
 “ catharsis is induced, emollient and oily clysters
 “ should be injected, and warm broth taken
 “ plentifully by the mouth. When it is ne-
 “ cessary to continue the evacuating course,
 “ and the bowels, from extreme tenderness,
 “ will not bear the more active resinous purges,
 “ the ol. ricini will be found of eminent ser-
 “ vice.” And, during the whole process of
 the cure, a free use of the native vegetable acids
 should be allowed; as recommended by Sir
 George Baker.

(4.) “ When these evacuations by blood-
 “ letting and purging have been made, the
 “ various stimulants, which have been com-
 “ monly proposed, in other cases of apoplexy,
 “ may be employed here with more propriety
 “ and safety, &c.”

§ Heberden's Lectures, MS.

Dr.

* Dr. Mead advises after evacuations the neutral mixture of Riverius, as a diuretic. † Dr. Heberden a repetition of active emetics and every means of rousing and exciting the attention of the patient. The volatile alcali fluor has been recommended, by M. Sage and some other gentlemen of the French Academy : particularly in the case of mephitic vapour ; which, being supposed of the nature of the aërial acid, was expected to be neutralized by it.

In this state of general insensibility, it may be defensible to give pain. Therefore, blistering the most tender parts ; stinging with nettles ; stimulating powders or spirits, as errhines, introduced into the nostrils ; the volatile alkalious spirits, diluted in water, forced into the stomach ; and friction, with the naked hand or flesh brush, may be used to advantage.

----- “ One of the most effectual means, of
 “ rousing apoplectics of this kind, seems to be
 “ throwing cold water on several parts of the
 “ body, or washing the body all over with it.”

* Account of Poisons, p. 153.

† Lectures on Poisons, MS. "

‡ Van Swieten relates a case, very much in point, of a man suffocated in a coal pit, on whom this remedy, amongst others, was made use of with success. § Dogs or other animals suffocated in the steams of the Grotta di Cani, near Naples, are recovered by being immediately plunged into the adjoining lake. The practice in Russia and Siberia, where suffocation is frequent, from the heated and mephitic air of the stoves made use of as dormitories, is to carry the patient instantly into the open air, and to sprinkle and rub him all over with cold water or snow.

(5.) “ Although the poison producing apoplexy happens to be so powerful as very soon to occasion the appearances of death above mentioned, yet if this state has not continued long, the patient may often be recoverable; and the recovery is to be attempted by the same means that are directed to be employed for the recovery of drowned persons, and which are now generally known.”

‡ Comment. in Aph. 1035.

§ Mead's Essay on Poisons.

For which therefore I shall refer my reader to our author's letter to Lord Cathcart, particularly as, in his own words.—“ These means of
 “ restoration are equally applicable to various
 “ other cases of apparent death, such as hanging, &c. and also to the frozen; which last
 “ must first be rubbed with snow, or spunged
 “ with cold water, till unfrozen, and then gradually brought into warmth and assisted by
 “ other means.”

But if, according to the experiments of the learned Abbè, so often quoted, the effect of all these powers is to occasion a coagulation and stagnation of the blood, in the heart and larger sanguiferous vessels; the congestion in those of the brain must be considered as an effect only, not a cause, happening probably but in the article of death: and this consideration will caution us not to take away blood, till the circulation is evidently restored.

The histories of our own Humane Society, and of those established on the Continent, for the recovery of drowned persons, furnish us with instances of success, from continued efforts, after
 every

every spark of life had been for hours apparently extinguished : and the analogy of those animals, by naturalists deemed less perfect, with whom life continues to be preserved, though the circulation has ceased for months, should encourage us not to give up our endeavours too soon.

Even a beginning putrefaction has not always been an absolute criterion of death.

I apprehend that the alteration, which we see the blood so soon undergo, on its being drawn from a vein or artery and exposed to the air, has been thought to take place, likewise, when it stagnates in its proper vessels ; and that this idea, certainly an erroneous one, has been attended with mischief, as leading to despair ; the ardour of industry will cool when it loses the support of hope.

OF P A L S I E S.

THE definition of palsy, was included in that of apoplexy; 1094. This, as being a disease consisting in a loss of the power of voluntary motion, in certain parts only; that, an affection of the whole of the powers of sense and motion. The most common form of palsy, being that in which all the muscles of one side of the body only are affected, usually named hemiplegia, is principally to be treated of here; 1143. “ In expectation that what is said of it, “ as a general affection, will apply to the more “ limited cases.” Considering this, as generally arising from apoplexy, and if terminating fatally, that it does so by passing into that state again, 1144. as usually attacking persons of the same description, and as being preceded by the same symptoms, professor Cullen is confirmed in the opinion of the affinity between the two diseases: 1146. consequently his pa-
I thology

thology and practice are, in both, very much the same.

I mean therefore not to follow the order of section by section, in this chapter, as it would occasion our retracing much of the foregoing argument.

But as, in the almost unconditional condemnation of strengtheners and stimulants in this disease as of dangerous or, at best, as of ambiguous use, 1159. 1160. a mode of practice is proposed, in many cases, very different from that of all preceding writers on the subject, 1154. it will not, I hope, be deemed an indecent liberty, if I venture to examine this contrariety of opinions, and should be emboldened to form some conclusions rather differing from the great example before me. Were my ideas, which are the result of some experience, and much thinking on the subject, not supported by a coincidence with those of authors of the first consequence and weight, in the medical world, these sheets would never have seen the light.

The system now before us will in future, most deservedly, have great influence on the practice of physic : therefore the doctrines which are advanced in it, if at all problematical, call for the strictest examination, in proportion to the high authority from whence they are derived. For, if the various exciting and bracing medicines, on which we have hitherto placed some dependence, and from the use of which we have flattered ourselves that benefits have arisen, are all of that dangerous, or at least ambiguous, use which he seems to apprehend ; we shall, I fear, find ourselves without a remedy, in one of the most deplorable cases to which the aid of medicine can be required, or which the eye of humanity can survey.

After what has been adduced in the chapter on apoplexies, it cannot be supposed that any thing is intended here to invalidate the opinion, that palsy, coming on with apoplectic symptoms, or succeeding to apoplexy, or attacking persons under the description of apoplectic predisposition, can be properly treated otherwise than as our author directs. But

setting aside all the instances of it occasioned by narcotic poisons or sedative powers, internally or externally applied, as out of the present question; are there not kinds of palsy, hemiplegia, or states of it, in which, according to the experience of all times, of which we have any records, stimulants are, not only neither dangerous nor ambiguous but, absolutely proper, beneficial and necessary?

In several sections of this chapter 1155. &c. the learned professor endeavours to compromise the difference between his own doctrine and that of the writers who have preceded him. Therefore allows, 1158. that, “the power of
 “ sense still remaining after the loss of the
 “ power of motion, it appears that the nerves
 “ are to a certain degree still pervious; and
 “ therefore that it is possible, that stimulants
 “ applied may excite the energy of the brain,
 “ so much as in some measure to force open
 “ the compressed nerves; and to shew some
 “ return of motion in paralytic muscles:” and that, “if these stimulants act more upon the
 “ nervous than sanguiferous system, they may
 “ possibly

“ possibly be employed without any very hurt-
 “ ful consequence.” But, 1159. “ as they all
 “ do, in some measure, act upon the sangui-
 “ ferous system, they may certainly do much
 “ harm, and, in a disease which they do not
 “ intirely cure, the mischief arising from them
 “ may not be discerned.” He then goes on,
 1160. to enumerate the several stimulants,
 which have been commonly employed, and to
 offer some remarks on their nature and use.

Respecting the external stimulants, 1161.
 which are applied to particular parts of the
 body only, I shall not repeat what our author
 has said; as neither the catalogue nor the modes
 of application differ materially from those of
 other writers. But shall just observe, by the
 way, that we are told, 1162. that “ the greater
 “ part of them shew their stimulant power, by
 “ inflaming the skin of the part to which they
 “ are applied, which interrupts the continuance
 “ of their use;” and that “ the inflammation
 “ of the part does not seem to do so much good
 “ as the frequent repetition of a more mode-
 “ rate stimulus.” Which seems to imply, that

the frequent repetition of a moderate stimulus may do good sometimes.

In treating of epilepsy, 1299. we are told,
 “ that physicians have hitherto taken little
 “ notice of certain causes, which manifestly
 “ weaken the energy of the brain, and act by
 “ collapse.” Which causes are “ concluded to
 “ be such as frequently produce syncope;
 “ which is supposed to depend always upon
 “ causes weakening the energy of the brain ;”
 and in the chapter on syncope, 1177. it is
 observed that “ the energy of the brain depends
 “ upon a certain fulness and tension of its
 “ blood-vessels ; for which nature seems to have
 “ industriously provided, by such a conforma-
 “ tion of these blood-vessels as retards the
 “ motion of the blood in them ; so that we
 “ readily perceive how evacuations of blood,
 “ by taking off the fulness and tension of the
 “ arteries and veins of the brain, and thereby
 “ diminishing its energy, may occasion a syn-
 “ cope.” Going still farther back, it is alleged,
 1115. that “ there are other causes, than com-
 “ pression, producing apoplexy by destroying
 “ the

“ the mobility of the nervous power: there-
 “ fore that it is probable that the apoplectic
 “ state succeeding an epileptic paroxysm, 1097.
 “ does not depend upon compression, but upon
 “ a certain state of immobility of the nervous
 “ power.” And farther, “ the same observa-
 “ tion leads him to think that the apoplexy,
 “ proceeding from retrocedent or atonic gout,
 “ 1098. is of the same kind, and that it de-
 “ pends upon an immobility of the nervous
 “ power.”

Thus we observe, by comparing our author
 with himself, that sudden and large evacuations
 of blood, frequently repeated epileptic or hy-
 steric paroxysm, atonic gout, &c. may all of
 them, acting by collapse, so far diminish the
 energy of the brain as to induce an immobility
 of the nervous power; which, if general and
 complete, is but another term for asphyxy or
 death. But if the attack happens to be less
 violent, these several sedatives will become vio-
 lent stimulants, and, the *vis medicatrix naturæ*
 being excited, the effect produced will be epi-
 lepsy, or partial palsy; not unfrequently both.

In the same manner, as we may observe, that certain passions of the mind, produce either syncope, epilepsy or hemiplegia, very much according to the different powers of reaction in the system. And the same consequences must of necessity follow, in the production of some one of these diseases, if other debilitating causes can be as effectually applied.

We have already been told that a certain fulness and tension of the sanguiferous vessels of the brain is necessary to a due exertion of the nervous power, and that the energy of the one system very much depends upon the vigour of the other. Therefore if the circulation languishes and the blood has, in consequence, lost its healthful properties, whatever they may be, the nervous energy will not be properly exerted; and persons in such a predicament will be liable to become paralytic. In a state of chronic weakness, and in extreme old age, we know that such predisponent circumstances have taken place, and a small share of experience will be sufficient to convince most men that the effect does frequently follow.

It

It may be objected that, in the case here supposed, a congestion or extravasation has often been discovered ; but, the objection will lose much of its weight, when we reflect that this congestion, or extravasation, has not depended on increased action of the arteries nor over resistance of the veins, but on a relaxation and atony of both ; and, as in the case of effusion discovered in apoplexy from retrocedent gout, ought to be considered as an effect, merely, not a cause of disease. We should scarce think of removing a palsy of this sort by evacuations ; but can readily conceive that, by increasing the action of the heart, we may give to the sanguiferous vessels of the brain their due degree of tension and fulness ; and thus restore the functions of the whole nervous system.

Professor Monro tells us that, “ he has long
 “ thought and endeavoured to prove that our
 “ nerves, independent of the encephalon, possess
 “ an energy or principle of life, which they
 “ derive from their proper pia mater and its
 “ vessels. Consequently that we should, in
 “ palsy and other diseases of the nervous
 “ system,

“ system, not confine our attention entirely to
 “ the state of the encephalon, the supposed
 “ sole origin of the nerves; but attend to the
 “ state of the circulation in the limbs affected.”

Which idea, though here proposed of partial palsy only, will certainly apply with great propriety to many cases of, the more general affection, an hemiplegia.

The celebrated nosologists of the present æra, are by no means agreed in their classification of palsy, a proof that they differ in their opinion of its nature and causes. Two of them, Sauvages and Sagar, certainly consider it as arising from weakness, by their arrangement, of every species, in the order *dyscinesia* of the class debilitates. The third, Vogel, comes very near the two first, as he enumerates all the kinds of palsy in his class *adynamia*; but afterwards joining with them all the soporose, and some others, merely local diseases, begets such confusion as must very much lessen our dependence on his discrimination. Linnæus, whom professor Cullen has principally followed in this part of his own classification, ranks the different kinds

kinds of palsy, with those of apoplexy, in the division soporosi of the class quietales..

Notwithstanding the difficulties attending this subject, nosological arrangement, the late Dr. Gregory tells us, “ that it highly deserves to be
 “ prosecuted, as does every attempt that tends,
 “ to discriminate diseases more exactly and, to
 “ facilitate the consulting and comparing of
 “ authors, who have described particular diseases.” Upon such authority I venture to hazard a further distinction, by which, it is hoped, that all future contradiction, both in pathology and practice, may be obviated. Thus, palsy which is the sequel of apoplexy, which attacks with apoplectic symptoms, and which invades persons of apoplectic predisposition, will certainly find its proper place amongst the soporosi; whilst that, if such will be allowed me, which is the consequence of a weakened nervous energy, the result of degenerated fluids and languid fibres, will as justly be comprehended in a class of adynamiæ or debilitates. The first might be distinguished as, *paralysis apoplectica*, the last, *paralysis atonica*.

Here,

Here, it is possible, another objection may arise, that palsy, if ever thus produced, the effect of declining life, of previous diseases or of chronic weakness, must be a general affection; and cannot appear in the more limited form of hemiplegia. It is true that, in our appeal to the great test of all physiological hypothesis, anatomical dissection, the signs of partial fulness will be much more easily discovered, as being much more obvious, than the signs of partial depletion: but in this case, as in many others, where we cannot obtain autoptical proof, we may build tolerably safe on the basis of analogy; and as a partial congestion has been often demonstrated, so a partial depletion may be reasonably supposed.

“ The case of palsy, which is both partial “ and transitory,” 1198. would seem then to be the possible result of either of these two states, but requiring an opposite method of cure, as constituting two distinct diseases; and the difference between them, must be made out, and may be readily, from the previous circumstances and present symptoms.

From

From a perusal of the thesis of Dr. David Wardrobe, de paralyfi, published so late as the year 1780, it appears that the learned professor's doctrine, in this instance, is not fully subscribed to even in that university where, in this branch of science, he presides. It is there observed that though, in the dissection of the encephalon of those who have died paralytic, tumours, extravasations, congestions, &c. have been frequently discovered, yet, that there are examples of all the known diseases of the head proving mortal, and upon the most minute dissection, not the least alteration could be perceived in the brain.—“Extant exempla omnium
 “ morborum capitis existentium qui lethales
 “ evaserunt, dum interea nullum cerebri vitium
 “ minutissime perscrutantibus omnino repertum
 “ fuit.”—And in his recitation of causes, after having enumerated those of compression, he says—“ Multa de vi nerveâ imminutâ, quæ
 “ paralyfin exsuscitare queat, adhuc dicenda
 “ restarent ; &c.”—“ Hæc omnia, non nervos
 “ cerebri comprimendo, morbos paralyticos ar-
 “ cessere consueverunt.”—“ Phœnominis somni
 “ vigilia-

“vigiliarumq; rite perpenſis, unicuique lique-
 “bit, vim cerebri nervoſam ſub variis rerum,
 “eventuum ac tempeſtatum articulis, diverſum
 “mobilitatis ſtatum gradumve ſubire.”—Agree-
 ably to this, he reckons, amongſt the principia
 proëgumena,—“Status aëris frigidior, humi-
 “dior; temperies frigida auſtralis, &c.”—upon
 the authority of Huxham, Haller, Celfus and
 Hippocrates: amongſt the principia proca-
 tarctica,—“Calor—frigus—ſedantia, quæ ad
 “tria capita reduci poſſunt, nempe refrige-
 “rantia, adſtringentia et nidoſa.”—His prac-
 tice therefore admits the—“plantæ acres anti-
 “ſcorbuticæ—aromatica tonicis adjuncta, &c.
 “e. g. cortex peruvianus, chalybeata, &c.”

The illuſtrious Boerhaave can hardly be ſaid
 to glance at atonic paſſy, his cauſes are—
 “Quicquid obſtruendo, ſolvendo, comprimen-
 “do:—metaptoſes materiæ morboſæ, &c.”—
 though we have in the catalogue,—“humiditas
 “frigida, uſus aquæ calidæ, nimius, aſſiduus,”
 —which laſt are certainly debilitating powers,
 and act by producing atony: the only ſtate in
 which his method of cure can be ſafe. e. g.

“Cephalicis,

“ Cephalicis, nervinis, purgantibus per alvum
 “ calidis, aromaticis, &c.”—Therefore as he
 proceeds in the idea of metaptoses, ferous ex-
 travasation and atrabilious temperament, “ ob-
 “ struendo, comprimendo;” the various means
 which he recommends, to quicken the circula-
 tion and raise a fever, are diametrically contra-
 indicated by his theory: for we can possibly
 form no idea of translation of morbid matter,
 or impaction of atrabilious humour, but under
 the shape of extravasation or congestion.

Baron Van Swieten, in his commentary on
 these passages, shews very plainly that he had
 an idea of palsy from weakness, as the following
 quotation will sufficiently prove,—“ Si jam con-
 “ sideretur in laxis et frigidis corporibus, in
 “ quibus sanguis ruber deficit, omnes motus
 “ musculares languere; patebit satis quantum
 “ boni calor sanus faciat ad corporis agilitatem:
 “ et e contra, frigus illam minuere, imo si
 “ validum fuerit, vel diu infestaverit quandam
 “ corporis partem, illam paralyticam reddere
 “ posse.”—But he comes more home to my
 purpose, when speaking of the “ usus aquæ
 “ calidæ

“ calidæ nimius, assiduus,”—there tells us—
 “ vidi plurimos, his potibus diu abufos adeo
 “ enervatum corpus habuiffe, ut vix languida
 “ membra traherent, ac plures etiam, apo-
 “ plexiâ et paralyfi correptos fuiſſe.”

A caſe related by Wepfer proves how neceſſary a due degree of preſſure, on the brain, is to the performance of its proper functions. A paralytic woman had gradually loſt her ſpeech, and at length became completely dumb, for the ſpace of ten hours and more ; but was cured by a cough and expectoration. What was moſt ſurpriſing, her ſpeech returned, whenever ſhe preſſed with her hand about the lambdoïdal future ; and ſhe became mute again, as ſoon as that preſſure was removed.

Hoffman tells us that, in the diſſections of apoplectic perſons, there is always found ſome injury in the brain. He ſpeaks indeed of no other proximate cauſe than compreſſion, from extravafation, congeſtion or tumour within the cranium : yet ſays that, in paralytic diſorders of long continuance, and debilities of the nervous ſyſtem, corroborants are neceſſary : as,
 ſpirit

spirit of sal ammoniac, an electary of peruvian bark and cascarilla; &c. and cautions against the use of blood-letting in the ferous palsy. Here the theory and practice are surely at variance? He gives us two cases of fatal apoplexy, in consequence of immoderate evacuation; the one by stool, the other by blood-letting; and supposes that spasms were brought on, which produced an hæmorrhagia cerebri. But, as it does not appear that he opened the heads of either of these patients, might he not be mistaken in his conclusion? and is it impossible that, in each case, the apoplexy might be occasioned by the sudden depletion of the sanguiferous vessels, producing universal atony: the other cardinal point in his system?

I have several times seen an hemiplegia brought on by a cathartic, operating a little more than the strength of the patient could properly support. And it is a cause by no means unfrequently exemplified in maniacal patients, after the operation of violent purges. But in one case, now more particularly in my eye, the patient had been for a long time in a

state of weakness, with loss of appetite, dyspepsia, &c. after a rheumatic fever: the purge was directed on account of an œdematous enlargement about the ancles: it fatigued the patient and next morning, she was seized with an hemiplegia of the right side, and loss of speech, just as she awoke; but the internal senses remained perfect. She recovered completely, though slowly, and by the usual means of stimulants and afterwards strengtheners. Neither the predisposition of the patient, nor the mode of recovery, in any apparent manner favoured the idea of pressure on the sensorium. It seemed in this case, as in many others, if my observations are just, that the nervous energy was deficient, in consequence of a loss of power in the heart and arteries.

Cases of this sort must often have fallen to the share of Gul. Piso, who referred the origin of all palsies to the serosa colluvies: and it must be allowed that these are the cases, like all others of general debility, in which there is often an hydropic tendency, and which, if neglected, frequently terminate in a watry inundation,

dation, not of the brain only but, of the whole body.

Why this state of weakness should sometimes continue, and increase till a general dropfy is produced, the brain and nerves still retaining their proper functions, or, why they should, at other times, lose their energy so as to produce partial palsy, or hemiplegia, when no hydropic symptoms appear; may depend on circumstances in the original fabric, too minute for explanation. Nor is it necessary, if we understand that the disease may be sometimes cured, by such means, as can restore to the circulation its necessary power, and to the blood its healthful properties. Instances are not wanting of every possible morbid appearance in the brain, on dissection, such as extravasation sanguine and serous, ossification, exostosis, &c. &c. yet occasioning neither apoplexy, palsy, epilepsy, idiotism nor mania.

Etmuller divides palsies into the primitive and positive: as causes of the first, he assigns obstructions and compressions of the brain and nerves; of the last, a cold moist air, an ex-

hausted nutritious juice in old-age, and an overflowing moisture in childhood: which is but another manner of expressing general debility, and an impoverished state of the vital fluid. Accordingly his curative indications are, to remove pressure, in the first instance, by evacuations; and in the second, to correct the peccant matter by aromatic and volatile sudorifics, a milk diet, &c. We are not to suppose that, when he talks of peccant matter, he means extravasated fluids; far otherwise, in his day every kind of weakness was attributed to some peccant humour or other; and when a better name could not be found it was called scorbutic: therefore we find amongst the medicines which he recommends the most celebrated antiscorbutic sudorifics and diuretics; to which are added the germander and ground-pine, noted tonics, and a milk diet, one of the first and best restoratives.

Willis, in his tractatus de pathologia cerebri, &c. ascribes paralytic disorders to two principal sources, an obstruction of the ductus of the nerves, and an impotency of the animal spirits:

the

the predisponents to which last are, errors in the non-naturals, idleness, a sedentary life, immoderate venery, great losses of blood, a moist and marshy air, &c. therefore his intentions of cure are that, the functions of chylication and sanguification being duly performed, a laudable matter, for the generation of animal spirits, be sent to the brain in sufficient plenty. Agreeably to this, we find in his catalogue of remedies, with the usual stimulants, diaphoretics, antiscorbutics, &c. the flesh and the tincture of vipers, virginia snake root, and steel : sufficient evidences of his intention to excite, to strengthen and to restore.

Dr. Mead tells us that apoplexy, when not mortal, terminates in palsy ; which he calls the crisis of the disease : and cites Valsalva and Morgagni in evidence that, in the hemiplegia, the cause of the disease was always found in that hemisphere of the brain, which was opposite to the affected side of the body. Therefore he gives the ætiology, of palsy, from pressure. But his method of cure, which he says is to be chiefly prosecuted with aromatic strengtheners

and steel, is applicable only to palsy occasioned by weakness or other sedative powers.

That kind of palsy, which so frequently follows the Devonshire and Poitevin cholera, and which has been, by Sir George Baker, irrefragably proved to be owing to the poison of lead, is not taken notice of here; because it is generally a partial affection, and because, as being the effect of a sedative power, it is one of the few cases, in which our learned professor does admit the use of stimulants.

Dr. Heberden's opinion on this subject, and there is none of greater authority, comes so much in aid of the doctrine, which I wish to establish, that palsy is sometimes the consequence of weakness merely, that I cannot help adding this one quotation more. He says that palsies and apoplexies most commonly attack those who are past the meridian of life, and frequently such as are at least upon the verge of old-age; &c. That the medicines hitherto established, *by experience*, to prevent their returns are almost all, except the purging ones, of the stimulating and cordial kind; &c. This, he thinks, is sufficient to make us suspect that mischief may be done

done by an indiscriminate use of large bleeding. And, gives it as his opinion, that whenever the state of the health was such, that there would have been just objections to taking away blood before the attack, there will always be a good reason, if not against bleeding at all, yet certainly against taking away much blood.

I thought here to have done with authorities, completing my climax with the name of Heberden: but, since writing the above, having seen a paper by the late Dr. Fothergill, in the last volume of the Medical Observations, on this subject; I cannot pass it over in silence. The doctor says—Bleeding in apoplexies, is one of those operations which on several accounts, requires the most dispassionate consideration.—If bleeding is performed, when it ought not, either death ensues or an incurable hemiplegia.—It is possible likewise that, by a copious bleeding, the animal strength may be so much reduced, and the effort begun (*viz.* the exertion of the vires vitæ to restore life) so powerfully checked by the operation, and the effects of the disease itself, that the patient expires soon

after, or survives a few days and suffers an hemiplegia: neither of which might probably have happened had bleeding been omitted.—No one can read the above and not be convinced that, in Dr. Fothergill's opinion, a palsy may be induced, by a too great reduction of the vital powers: and it surely makes no difference, as to the probability of the effect, whether the weakness is brought on, by the slow progress of chronic disease, or the sudden depletion of a too large evacuation. It is sufficient to my purpose that he, as well as the respectable writers before named, allows of such a case; and treats it accordingly, without the least apprehension of pressure on the sensorium, but as secondary and accidental. From the tenour of all the foregoing arguments, it must appear that, neither the whole of the doctrine last adduced, nor the practice so strenuously recommended, can easily assimilate with all my ideas of the subject. For, allowing that “the frequency of apoplectic insults, after a full meal, is owing to the pressure of the distended stomach on the descending aorta, because

“ because as yet there has not been time for the
 “ fresh chyle to be poured into the blood, and
 “ to augment its quantity to a degree equal to
 “ the effect,” yet, as the patient is described
 fat, short necked, inactive, eating plentifully,
 &c. a previous plethora is supposed; therefore
 in this state of things, although it may be very
 desirable to remove the obvious cause, the load
 in the stomach, as speedily as possible; it can-
 not safely be attempted by emetics, “ liberal
 “ doses of white vitriol, or emetic tartar, nor
 “ by exciting a flow of blood and vital energy
 “ to the lower extremities by stimulants, espe-
 “ cially sinapisms.” In cases of this sort a
 single cautious bleeding, to relieve the con-
 gestion, can do no hurt; purgatives and active
 stimulating glysters are still in our hands, and
 we may safely avail ourselves of all their powers.
 If a spontaneous vomiting should supervene,
 perhaps we may venture, according to the ad-
 vice of Aretæus, gently to promote it; as it
 generally may be considered a sign of the sen-
 sorium not being so much affected, as when no
 such effort is produced.

It

It would be very easy to multiply these citations, but these, taken from writers of the first character, will be sufficient to prove that all, whether ancient or modern, have considered some states of palsy, as requiring the aids of stimulants and corroborants. And if, by experience, their unequivocal good effects had not been sufficiently manifested, I cannot think that the error would have been propagated, by a succession of learned, thinking and conscientious men, through a period of two thousand years.

There is indeed a difficulty remaining, which it is necessary that I should remove, not to appear inconsistent with myself: as at setting out it was allowed, that apoplexy and palsy, and indeed all the soporose diseases, are but one and the same, differing only in degree; and the distinction of apoplexy and palsy, into sanguineous and serous, of no avail in medicine; nay even of dangerous tendency, and the source of much mistaken practice; they being both dependent on increased action of the arteries and over resistance of the veins. How then can I now, upon the authorities lately adduced, still recommend,

mend, in some cases, the use of those very remedies which, by increasing the circulation, must have the effect of adding to that congestion or extravasation, which is the cause of the disease? Especially as almost all the writers, who have given us the histories of morbid appearances after death, have seen either congestion in the blood-vessels of the brain, or extravasation, of some sort, in its ventricles!

This difficulty is however obviated at page 123, by considering palsy in two different points of view, as the probable result of two opposite states, and consequently, in its causes and method of cure, as two distinct diseases.

If the pathology and therapeutics, delivered by some of those authors to whom we have referred, do contradict each other, it may be no unprofitable labour to examine how it has so happened.

We have sufficient authority that, in the brain of several who have died paralytic, no morbid appearance has been discoverable. In the true atonic palsy, when it terminates fatally, it is more than probable that, the alteration produced is, in the tissue of the brain and
nerves,

nerves, perhaps a derangement of their fibres, occasioned by their exanguious state; such as to elude the scrutiny of human eyesight, even when assisted by the best glasses: the spiral and convoluted appearance, of the ultimate fibrils of the nerves, is still doubted, by professor Monro, whether being the true representation of nature, or optical deception only.

Professor Boerhaave, after recommending all the stimulating remedies internally and externally, candidly confesses that—"in usu tamen
" horum omnium augetur sæpe malum,"—most certainly, when the cause was compression. But as they were sometimes applied in cases of mere weakness and inanition, the patient then recovered, and this success supported the practice. The encephalon of those who recovered was not, could not be, examined; and of those who died, if there was any morbid appearance, it was generally more or less of lymphatic exudation; formed perhaps in articulo mortis: yet sufficient, when compared with other dissections, where the brain was found compressed to almost half its natural bulk, by a load of superincumbent

bent water, to strengthen the opinion that a serosa colluvies was, of palsy, always the cause; and to lead them to argue from what they did see, in the patient who died, to what they did not see, in him who recovered; and to assign one general cause to all: making the false conclusion that these remedies, in the successful case, had been effectual in carrying off the extravasated pituita, by perspiration or urine: so that though the practice of stimulants was sometimes right, the reasoning, in support of it, was almost always wrong.

To reconcile all these jarring systems, it seems only necessary to admit one more, to professor Cullen's list of sedative powers; the power of weakness, the *vis inertiae* of the microcosm. I am induced to offer this here, rather than in the chapter on apoplexy, because it shews its effects so much oftener in the form of hemiplegia: and because, though it does sometimes appear in the form of asphyxy, the cure is generally beyond the power of art: as, in such a state of universal atony, all reaction is to be despaired of.

But

But to come at last to the consideration of the external stimulants, 1165. which may be applied so as to affect the whole system :— “ the powers of heat, cold and electricity.”

“ Heat, employed by warm bathing,” as stimulating the solids and rarefying the fluids must be hurtful in every species of congestion ; therefore its use is justly limited to the cases of narcotic powers. In palsy, from weakness, the stimulus being very transient and the relaxation lasting, it cannot reasonably be proposed.

“ Cold, applied to the body for any length of time, is always hurtful to paralytic persons ;” 1166. “ but if not very intense, nor the application long continued, and if at the same time the body is capable of a brisk reaction, is a powerful stimulant ; and has often been useful in curing palsy.”—Here then is a stimulant, a general, a powerful one recommended, not restricted to the cases arising from narcotic poisons, or sedative powers. Of its very beneficial effects we have frequent proofs, but its *modus operandi* is hardly reconcilable

cileable with the idea of congestion still remaining. If the Professor means, as he certainly does, that all suspicion of plethoric congestion should be first removed, by evacuations and a spare diet; then some of the other stimulants will be almost equally admissible. If the palsy originated in chronic weakness, or the natural effects of declining life, we ought to be particularly attentive to the state of the power of reaction: which, in the first case, may be previously increased by the use of stimulants and internal tonics; in the last, is hardly to be expected.

“ Electricity, in a certain manner applied,”
 1167. “ is one of the most powerful stimulants
 “ that can be employed to act upon the nervous
 “ system of animals: but, as its action is like-
 “ wise powerful on the sanguiferous, its effects
 “ must be very hazardous in palsies depending
 “ upon a compression of the brain:” therefore
 it is admitted only, when applied with moderate
 force, to parts remote from the head, and in
 those cases which have been produced by
 narcotic powers.—And further as “ the opera-
 “ tion

“ tion of electricity, when very strong, can
 “ destroy the mobility of the nervous power, it
 “ is always to be employed with caution.”—

In atonic palsy then it will ever be a dangerous remedy in proportion to its power: the cautious modifications of which, and the application of it at a distance from the head; but particularly to the affected limb, in partial cases; and as near as may be about the region of the heart, in general ones; seem to be the necessary preliminaries to ensure its success.

“ L'électricité donne la mort, &c.—Et néan
 “ moins cette même électricité est un des plus
 “ forts stimulans qu'on connoisse pour la fibre
 “ musculaire. Elle rend la vie en excitant
 “ l'irritabilité, à ces mêmes animaux, dans les
 “ quels elle l'avoit détruite un instant auparavant. Parmi tous les stimulus qu'on peut
 “ employer pour rappeler à la vie les animaux
 “ que la commotion électrique a fait tomber en
 “ *asphyxie*, les étincelles légères appliquées à pro-
 “ pos m'ont paru le remede le plus efficace*.”

* Fontana, vol. i, p. 78.

We have lately been informed however, that some of the French academicians have employed the powers of electricity, in the mode of considerable shocks, with good success: but as we do not yet know, what degrees of force were made use of, nor the particular parts to which it was applied, nor the states of the patients, cannot avail ourselves of the information. Some other recent experiments in electricity, made at home, seem to promise more. An electrical shock, sent through the head of a common domestic fowl, laid him dead upon the ground, never to recover but by a second shock, directed through the heart: upon which the circulation was restored and the animal brought back again to life. A result of this sort, if constant, goes a great way towards proving of how much efficacy, in all cases of atonic palsy, and palsy from sedative powers, is the excitation of the action of the heart and arteries.

“ Exercise, as a general stimulus, is not to be
 “ omitted,” 1168. it seems, to require only its necessary regulations, to be properly adapted to every possible state of palsy, however occasioned.

The internal stimulants come next to be considered, 1169. These are, “ the volatile alkaline
 “ salts, the vegetables of the class tetradinamiæ,”
 amongst which the cochlearia, raphanus and
 sinape are chiefly used, “ the various aromatics,
 “ some other acrid vegetables, some resinous
 “ and terebinthinate substances, or their essen-
 “ tial oils, sweating by decoctions of guaiacum,
 “ or the fumes of burning spirits of wine in the
 “ laconicum, many of the foetid antispasmodics:”
 to which our author subjoins bitters and the
 peruvian bark. It is very clear that none of
 these are properly applicable to any case of
 plethora: however transient their effects may
 be, they all do, in a greater or smaller degree,
 act by quickening the circulation. But if the
 case of atonic palsy, which I have supposed,
 and which I think exists in nature, is allowed
 me, these stimulants will there find their proper
 use; and will rise in value, according to their
 power of exciting the action of the heart: and
 as their effects are not very lasting, nor can
 they be forever repeated, we may expect from
 the tonic properties of chalybeates, bitters
 and

and the peruvian bark, a continuation of that action which these had first excited. The same reasoning will cautiously apply to many cases of palsy, which, though originating in plethora, has by repeated evacuations and a spare diet been reduced to such a one as we are now considering.

At section 1150. our author asks—"Can a palsy occasioned by compression remain, though the compression be removed?" It has been several times proved that palsy, brought on by tying a nerve, has remained, although the ligature was taken away: and something analogous to this may take place in some of the instances of palsy which are consequent to apoplexy.

In all cases of long standing there is good reason to suspect, that some degree of serous extravasation, as an effect, not of increased action of the arteries, nor of over resistance of the veins, but of relaxation and atony, both of the exhalants and absorbents, has also supervened: and we shall therefore be led to prefer, in such as are the sequels of apoplexy, and of

that kind, out of the part of the *materia medica* now in consideration, the diuretics and diaphoretics: whilst in those, arising from debility and inanition, the volatiles and aromatics will deserve the preference.

I must therefore take the liberty to differ from professor Cullen, "*pace tanti viri*," in the conclusion, 1170. "that they are often of ambiguous use." That "they may readily do harm," and that they have frequently, is certain; but such an event has generally arisen from their indiscriminate and injudicious application: to which the apophthegm of Celsus respecting blood-letting in this disease, is almost equally appropriate;—"vel occidit vel liberat."

F I N I S.

